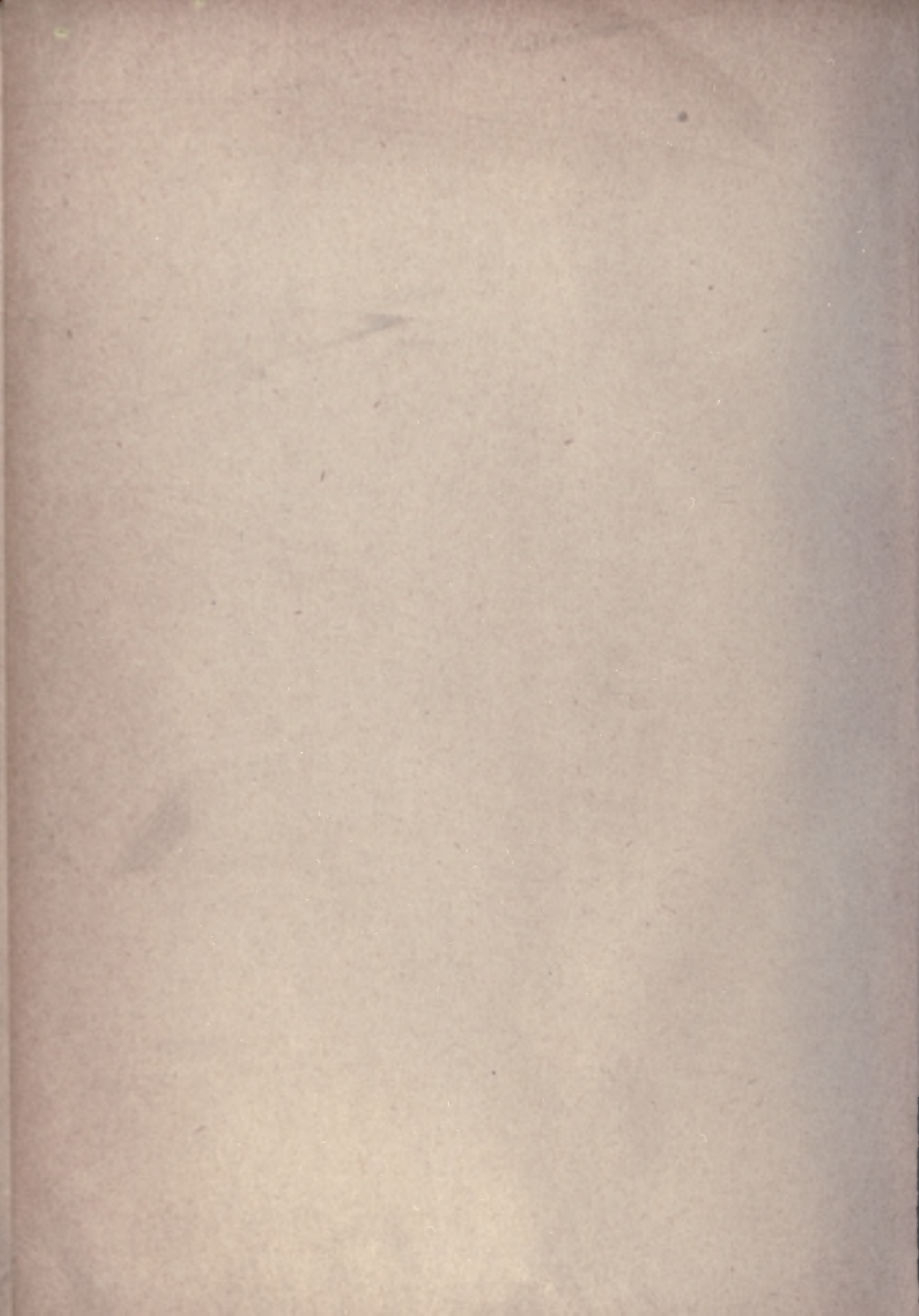


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INTERNATIONAL ABSTRACT OF SURGERY

JULY, 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

ANÆSTHESIA

Labat, G., and Meeker, W. R.: *Inguinal Herniotomy under Regional Anæsthesia: A New Method of Field Block.* *Surg., Gynec. & Obst.*, 1922, XXXIV, 398.

Regional anæsthesia is especially useful because of its safety and wide field of application. The only contra-indication is extreme youth. It is preceded by an injection of 1/6 gr. of morphine and 1/300 gr. of scopolamine one hour before operation.

For a unilateral reducible hernia anæsthesia is induced with 100 c.cm. of a 0.5 per cent and 50 c.cm. of a 1 per cent novocaine solution, 10 minims of 1:1,000 adrenalin being added for each 100 c.cm. For the average case 150 c.cm. are sufficient.

At a point 2.5 cm. medial to the anterior-superior iliac spine an intradermal para-iliac wheal is raised. Here, with 50 to 60 c.cm. of equal parts of the solutions, injections are made toward the umbilicus and the iliac crest, extending down to the transversalis fascia and into the rectus sheath. A subcutaneous injection blocks the ilio-inguinal, iliohypogastric, and the two lower thoracic nerves. Just above the pubic spine a pubic wheal is raised through which 5 c.cm. are injected into the deep pubic attachment of the rectus muscle, and 5 c.cm. along the horizontal ramus of the pubis to a point 3 to 4 cm. beyond the midline to block the terminations of the overlapping branches of the opposite lumbar nerves.

Just below Poupart's ligament and lateral to the femoral artery a subinguinal wheal is raised, through which about 10 c.cm. of the 0.5 per cent solution are deeply injected underneath the ligament, followed by injections parallel with and along this ligament. The purpose is to control the overlapping branches from the anterior crural and external cutaneous nerves, and to permit a greater pull on the internal ligament during the approximation of the deep layers. Cord structures are carefully injected with 5 c.cm. of a 1 per cent solution from the pubic spine upward. Final injections are made

with 5 to 10 c.cm. of a 1 per cent solution through the pubic wheal into the margins of the internal ring for the purpose of surrounding the sac and blocking the genitofemoral nerve. The anæsthesia remains complete from one and one-half to two and one-half hours.

The technique for a bilateral hernia follows the same principles, 200 c.cm. of 0.5 per cent and 50 c.cm. of 1 per cent novocaine, with 20 minims of adrenalin, being used. The operation is begun on the side first injected.

For an irreducible hernia the technique depends on the amount of regional deformity, wheals being raised as usual unless the deformity is too great. In the latter case the pubic wheal is raised on either side of the hernial mass. Great care is needed in injecting the cord; when there is doubt it is best to expose it first.

In a strangulated hernia there is such diminution of sensibility that simple infiltration along the line of incision suffices. Deeper injections depend on pathologic changes in the hernia and surrounding tissues.

For inguinoscrotal and recurrent hernia the technique is the same as for unilateral inguinal hernia except that, as the cord structures are particularly difficult to block, it is best to inject them after exposure.

Regional anæsthesia is the method of choice and should be more widely used than only for cases in which general anæsthesia is associated with risk.

G. R. McAULIFF, M.D.

SURGICAL INSTRUMENTS AND APPARATUS

Osborne, E. D.: *A Rubber Stopper for Containers Used in Preparing Blood Serum for Intraspinal Injections.* *J. Am. M. Ass.*, 1922, LXXVIII, 580.

Osborne describes a new rubber stopper for glass containers used in preparing blood serum for intraspinal injections which is made by boring a hole into the base of a standard rubber stopper of

the size to fit over the mouth of the rolled-top container.

The advantages claimed for this stopper are that it eliminates waste of gauze, cork stoppers, and rubber bands, prevents contamination by foreign matter, and reduces the time and number of assistants, the risk of bacterial contamination from all sources, and the cost of preparing the serum.

Pond, D. B.: Improved Needle and Method for Citrated Blood Transfusions. *J. Am. M. Ass.*, 1922, LXVIII, 608.

The author has devised an apparatus which, by means of a 20-cm. glass Luer syringe attached at right angles to the shoulder of a 15 gauge aspirating

needle, allows the sodium citrate solution to be mixed with the blood from the donor as it leaves the vein.

The blood is carried by means of a rubber tube to a glass tube which reaches to the bottom of a Florence flask. The flask is then shaken and inverted, the blood being allowed to escape through a second tube and carried to the vein of the recipient. The advantages of this apparatus are:

1. It prevents clotting in the needle.
2. The red blood cells are not injured by a stirring rod.
3. The closed container prevents contamination of the citrated blood by foreign matter from the outside.

WILLIAM J. PERKINS, M.D.

SURGERY OF THE HEAD AND NECK

HEAD

Apfelbach, C. W.: Studies in the Traumatic Fractures of the Cranial Bones: I. Edema of the Brain; II. Bruises of the Brain. *Arch. Surg.*, 1922, LV, 434.

Aside from the severe lacerations of the brain that occur at the time of injury, most bruises of the brain are caused by bleeding due to rupture of the pial arteries at or near the juncture of the white and gray matter.

In many instances the leptomeninges with the cerebrospinal fluid protect the surface of the brain from injury and the force is expended at or near the juncture of the white and gray matter because of the difference in density of these tissues.

Traumatic leptomeningeal hemorrhage is most frequent at the top of the brain because in this region the thin meninges are less firmly adherent to the brain and the spaces between the visceral layers of the arachnoid and pia are larger than at the base of the brain.

Lacerations of the leptomeninges of the base of the brain are caused both by trauma at the time of fracture of the cranial bones and by subsequent bleeding into them from cerebral injuries.

H. A. McKERR, M.D.

Young, R. E.: A Case of Cerebral Injury and Cranioplasty. *Glasgow M. J.*, 1922, LV, 103.

The patient was a boy 19 years of age who was struck on the head by a steel plate and fell 40 ft., suffering a laceration of the scalp and a depressed fracture of the right parietal region. He made a good recovery from operation but was unable to return to work.

One year later he suffered from frontal headaches, giddiness when he stooped, falling memory, nervousness, and insomnia. He had no convulsions, however, and was able to study. Traction on the scalp over the injured area caused considerable pain and indicated the presence of adhesions between the

scalp and the intracranial contents. Bulging occurred when the patient coughed. The area denuded of bone was oval-shaped and at its widest part measured 2 by 1 1/4 in.

Operation was performed to close in the gap by means of a bone graft taken from the tibia. Adhesions were found between the scalp and the brain tissue. The patient left the hospital five weeks after the operation. Five months later his condition showed some improvement.

Consideration of this case points to the hand-area of the ascending parietal convolution as that which received the chief injury from the depressed fragment of bone. It confirms Head's assertion that the more primitive sensations of touch and temperature are not cortical, but are appreciated by the optic thalamus, whereas a lesion of the post-central cortex affects the more highly specialized senses used in judging weight, shape, and space. The author's patient, however, could differentiate between textures.

CARL R. STEINKE, M.D.

Munro, D.: The Indications for Operation in the Treatment of Injuries Involving the Brain. *British M. & S. J.*, 1922, CLXXXVI, 342.

The indications for operation in injuries involving the brain are three: compound fracture of the skull, depressed fracture of the skull, and a rise in the intracranial cerebrospinal fluid pressure. Exclusive of the more or less specialized fractures of the skull, the compound and the depressed varieties, fracture *per se* is not an indication for operative interference.

Persons who have received an injury to the brain do not develop symptoms and do not die from the fracture which may be present in the bones of the head, but they do develop symptoms and they do die as a result of the increase in the intracranial pressure which is associated with fracture and not infrequently is present in the absence of fracture.

The indications for operation in compound fracture of the skull are clear. Just as in a compound fracture of any bone, we have at the very least a potentially infected wound, and steps must be taken to prevent this infection from spreading to surrounding clean tissues, which in these cases are primarily the brain and the meninges. This may be accomplished best in the majority of cases by debridement.

In depressed fracture of the skull the X-ray examination is of the greatest importance. Depressions should be raised or removed.

Increased intracranial pressure as an indication for operation in the treatment of injuries of the brain is of paramount importance. Its presence or absence should be the first determination made in any such case.

The intracranial cerebrospinal pressure depends on the relation between the secretory powers of the choroid plexus and the absorptive powers of the cerebral venous circulation.

The ability to diagnose this important and dangerous condition correctly depends upon our ability to measure, first, the normal cerebrospinal pressure, and second, an increase in the cerebrospinal pressure. This is done by a manometer. With the adult patient lying on his left side, the entire spinal column being horizontal and the top of the columns of mercury on a level with the needle inserted as for an ordinary lumbar puncture, the normal pressure varies between 6 and 10 mm. Any reading above 10 mm. is abnormal and evidence of an increase in intracranial pressure.

Intracranial hypertension may and often does cause death in the absence of any injury to the bony coverings of the brain. In Sharpe's "First Stage of Compression," the manometric cerebrospinal fluid pressure is given as from 12 to 14 mm. Hg. Repeated lumbar puncture with the withdrawal of sufficient fluid to lower the pressure to normal will frequently cure patients in this condition. In fracture with high pressure, however, lumbar puncture is dangerous as herniation of the medulla into the foramen magnum may cause death.

All patients who have received or are suspected of having received even a slight injury to the brain should have the pressure of the cerebrospinal fluid measured as soon as they have recovered from the surgical shock, and the treatment should be based primarily upon this finding alone.

Reflexes, the presence of blood in the cerebrospinal fluid obtained at puncture, and bleeding from the nose, mouth, and ears have no bearing whatsoever on the line of treatment to be adopted.

Intracranial pressure above 10 mm. and below 16 mm. Hg., as measured by the manometer reading, calls for repeated lumbar punctures with drainage of sufficient cerebrospinal fluid to reduce it to normal. Readings above 16 mm. Hg. call for decompression, preferably subtemporal.

H. A. MCKNIGHT, M.D.

Laewen, A.: Operations on the Choroid Plexus of the Lateral Ventricles and the Open Fenestration of the Corpus Callosum in Internal Hydrocephalus (Ueber Operationen an den Plexus chorioidei der Seitenventrikel und ueber offene Fensterung des Balkens bei Hydrocephalus internus). *Beitr. z. klin. Chir.*, 1922, cxxv, 1.

Laewen repeated the operation performed by Dandy successfully four times, in which the source of the increased production of cerebrospinal fluid in hydrocephalus was obliterated by resection of the choroid plexus of the lateral ventricle. Laewen's operation was performed on a 4-weeks-old child with severe hydrocephalus. After widely opening the right lateral ventricle he was able to remove the whole plexus from the foramen of Monro to the entrance into the lower horn. The child remained alive for three weeks and then died from a suppurative meningitis due to a cerebrospinal fistula. A noticeable diminution of the circumference of the skull could not be definitely ascribed to the operative procedure although there was temporary dripping of cerebrospinal fluid through the fistula.

The sudden emptying of large amounts of cerebrospinal fluid is borne well in such cases since, because of agglutination of the subdural space, the hemispheres do not sink in and the circulation in the brain is not disturbed. The danger of hemorrhage from the choroid plexus, which is difficult to ligate because of the ease with which it tears, is dependent solely upon the strength of the pedicle of the choroid artery which is to be divided. By the route advocated by Dandy, followed also by Laewen, the plexus is reached through the broad opening of the lateral ventricle. This is indicated, however, only in the presence of great distension and thinning out of the brain substance with marked hydrocephalus, as in other cases serious destruction of the brain substance would be necessary. For the latter the author therefore proposes gaining access to the lateral ventricle by fenestration of the corpus callosum, as he was able to do several times in dogs. Three dogs remained alive and showed no loss of function in spite of relatively large openings from one-half to three-fourths of the length of the corpus callosum. This suggests the possibility of substituting the open fenestration of the corpus callosum as proposed by Laewen for puncture of the corpus callosum, which sometimes fails because of the adhesions of the two hemispheres to each other and is not entirely harmless as regards secondary injuries.

The author tried this on four patients: a woman 41 years old with glioma of the corpus striatum, who lived four weeks and died from another cause; a boy 10 years old with hydrocephalus, who remained alive with relief from headache and vomiting and showed a return of the corneal reflex; a woman with eclampsia and marked cerebral pressure, who died after three days as a result of the advanced state of the disease process in spite of relief from pressure; and a child 6

months old with hydrocephalus which died as a result of collapse of the hemispheres following the relief of pressure.

The operation consists of the formation of a large osteoplastic skin and bone flap with its base in front of the ear, protruding about 3 cm. beyond the midline, the formation of a dural flap with its base at the sagittal sinus, ligation of a few of the superior cerebral veins leading to the sinus, the introduction of a spatula to separate the hemispheres and the take up to the corpus callosum, and a longitudinal incision or the formation of an oval fenestrum.

SHANNON (Z).

Auerbach, S.: Central Fever Following Operations on the Brain and Spinal Cord (*Ueber centrales Fieber nach Gehirns- und Rückenmarksoperationen*). *Zeitschr. f. d. ges. Neurol. u. Psychiat.*, 1931, 103.

In connection with three of his own observations of central fever (hyperthermia) following surgical interference on the central nervous system, Auerbach discusses the surgical and neurological literature on the subject and the results of physiological and experimental investigations on the heat centers. The best explanation of hyperthermias following operations on the central nervous system, provided there was a considerable outflow or stasis of the cerebrospinal fluid, Auerbach finds in the investigations of Jacoby and Roemer and von Aschner and Isenschmidt. According to Jacoby and Roemer, the cause of the hyperthermia is an inflammatory-hyperemic condition of the walls of the ventricle produced by the operative injury with or without opening of the ventricle. Aschner showed that the hypophysis exerts an influence on the heat economy. On the basis of experiments on rabbits Isenschmidt came to the conclusion that the tuber cinereum is the most important central organ for the regulation of heat, and from Aschner's experiments he concluded that this center is under the influence of the secretion of the hypophysis with which it is directly connected through the infundibulum.

Irritation of the walls of the ventricle and loss of the hypophyseal secretion with a marked outflow of cerebrospinal fluid would therefore explain the hyperthermia in the cases mentioned. The author believes that in cases without the outflow of cerebrospinal fluid the assumption of Krause holds good, that great importance is to be attributed to the manipulations of the brain and the changes in pressure. Why only a relatively small number of cases show the phenomenon of postoperative hyperthermia is unexplainable without the assumption of an individual variation in heat regulation. In children and in adults beyond the fiftieth year of age the hyperthermia is not without danger. In view of the findings in the animal experiments of Jacoby and Roemer, the author recommends as treatment the injection into the ventricle of adrenalin and hypophysis.

WEISS (Z).

Maragliano, D.: Endothelioma of the Brain (*Endothelioma del cervello*). *Arch. Ital. di chir.*, 1931, 5, 1.

Maragliano's case was that of a man aged 48 years. The endothelioma arose from the internal surface of the dura mater and compressed the cortex of the Rolandic area. Because of its slow growth the brain had adapted itself to the gradual compression and to a great extent had preserved its functional capacity. The phenomena of motor deficiency were therefore slight.

Maragliano operated in three stages with an interval of six days between the first and second. In the first stage a Wagner osteoplastic trephination was done. Section of the cranial theca was followed by considerable hemorrhage. In the second operation attempts to lift up the neoplasm through the cranial opening caused slight hemorrhage and the pulse and the patient's general condition prevented further procedure. A small section of the tumor having been removed for histologic examination, the osteoplastic flap was turned back and completely sutured.

The third operation was done four days later. When the osteoplastic flap was again turned back, the tumor, which involved the parietal lobe, was clearly visible. It was the size of a mandarin orange and very vascular. Maragliano was able to enucleate it with its capsule in a clear cleavage plane from its superior pole and the healthy parenchyma. The hemorrhage was not severe and was arrested with tampons. Extensive resection of the dura was necessary to prevent adhesions between the brain denuded of its meninges and the inner table. The defect was covered with grafts of fascia lata. The osteoplastic flap was then replaced and completely sutured, only a small opening being left for a fine drain.

The postoperative course was excellent. Jacksonian convulsions persisted for only a few days. Headache ceased completely after three months. When the patient was seen fourteen months after the operation he appeared to be as normal as ever. There are a few slight sensory disturbances in the left hand but they offer no impediment to work.

To repair the large defect left by the excision of the dura the author used a transplant of fascia lata, as Eiselsberg has done in a number of cases. The result was satisfactory. Such a transplant besides being the best means of impeding adhesion of the denuded brain, may be usefully applied in decompressive trepanations.

With regard to the diagnosis Maragliano states that in the case reported the microscopic and chemical examination of the cerebrospinal fluid showed a manifest lymphocytosis and an increase of the total albumin. While these findings suggest an inflammatory process, and especially cerebral lues, they do not speak against cerebral neoplasm as they are characteristic of small-cell infiltration which in lues is caused by the treponema and in tumors is associated with neoplastic infiltration.

W. A. BRENNAN.

Mintz, W.: The Route to the Hypophysis through the Sphenoidal Sinus (Ueber den Weg zur Hypophyse durch die Keilbeinhöhle). *Arch. f. Klin. Chir.*, 1922, cxix, 219.

Four cases of hypophyseal tumor were successfully operated upon by the trans-sphenoidal route with the patient in the sitting position under local anesthesia which provided a bloodless field and excellent exposure. The framework of the nasal cavity was spared as much as possible; the septum was divided by the formation of a tongue-shaped flap leading backward. Only its upper half was pinched off. The intra-orbital margin corresponds to the level of the floor of the sphenoidal sinus.

In one case of long-standing acromegaly the sphenoidal sinus was as large as the tip of the index finger and was occupied at the right and above by a mass. The removal of a plate of bone in the upper posterior angle of the cavity in the midline exposed the dura but not the mass. When a small plate of bone in the region of the mass was broken off a severe arterial hemorrhage from the carotid artery resulted. This was arrested by packing. Two weeks after the removal of the tampon there was renewed hemorrhage but after seven weeks no further bleeding occurred. In nine months a striking retrogression of the acromegaly was noticeable. The possibility of injuring the carotid artery induced the author to investigate the topography of the sphenoidal sinus.

The sella turcica may lie: (1) at the upper wall of the sphenoidal sinus; (2) at the juncture of the upper and posterior walls; (3) behind the posterior wall. Normally the fourth bend of the carotid artery lies in the trough of the lateral wall of the sphenoidal sinus; the fifth also, and with its convexity turned toward the sella turcica. The relation of the carotid artery to the sphenoidal sinus varies according to the size of the latter. The position and bend of the sections of the carotid artery may be abnormal. A mass growing toward the sphenoidal sinus pushes the vessels aside so that they are removed from danger, but when there is an empty roomy sphenoidal sinus the search for and opening of the sellar sphenoidal sinus may result seriously even when the greatest care is exercised.

STREISSLER (Z).

Kanavel, A. B., and Davis, L. E.: Surgical Anatomy of the Trigeminal Nerve. *Surg., Gynec. & Obst.*, 1922, xxiv, 357.

Since division of the sensory root of the trigeminal nerve has come to be the operation of choice in the treatment of trigeminal neuralgia, the authors studied one hundred skulls with reference to the surgical anatomy of the gasserian ganglion. The objects of this study were to establish certain landmarks in the middle fossa favoring rapid localization of the operative field; to determine the important relations of the ganglion and sensory root; to discover the exact situation of the motor root in order to preserve it as consistently as possible; and to find an explanation for the occasional cases in

which paralysis of the facial nerve occurs following the operation.

The distances from the foramen spinosum to the gasserian ganglion, foramen ovale, and foramen rotundum respectively were 1.66 cm. at an angle of 20 degrees occipital from a transverse diameter through the foramen spinosum; 0.7 cm. at an angle of 30 degrees frontal from this diameter; and 2.27 cm. at an angle of 36 degrees frontal from the transverse diameter. In 41 per cent of the skulls a marked bony prominence overhung the foramen spinosum. The motor root was always medial and somewhat superior to the sensory root centralward from the ganglion and could be easily distinguished from the sensory root. At operation, recognition of the motor root is corroborated by electrical stimulation.

Several cats were operated upon, the sensory root of some being cleanly divided while that of others was avulsed. After sufficient time for degeneration the pons was removed and sectioned. In no instance was there evidence of damage to the facial nerve within the pons.

From their study the authors conclude that paralysis of the facial nerve is due to traction exerted upon the geniculate ganglion through the greater superficial petrosal nerve in elevating the dura mater from the floor of the fossa.

LOYAL E. DAVIS, M.D.

Grant, F. C.: Anatomical Study of Injection of the Second and Third Divisions of the Trigeminal Nerve. *J. Am. M. Ass.*, 1922, lxxviii, 794.

Not satisfied with the landmarks and technique of injection of the second and third divisions of the trigeminal nerve, the author has devised an instrument for determining the former and formulated a technique which is quite original. The instrument, which is called a "zygometer," measures accurately the distance from the external auditory meatus, the horizontal level, and the direction of the needle for the accurate injection of the second and third divisions of the trigeminal nerve at their exit from the skull.

In the subzygomatic injection of the maxillary division, the fixed point through which the first series of angles was determined was 3.5 cm. anterior to the ear and on a level with the masseteric edge of the malar bone. In eighty-five cases in which 162 injections were given the nerve could not be reached in three cases on the right side and in one on the left. In nineteen cases it was necessary to open the lower jaw to avoid impinging on the coronoid process. In thirteen of these nineteen cases this was done on both sides.

The average angles determined in the 162 injections on eighty-five cadavers were 98.5 degrees in the horizontal plane and 115.5 degrees in the vertical plane. The angle at which the shaft of the needle entered the skin was measured from the malar bone posteriorly (before backward) for the horizontal plane, and from the vertex of the skull

downward (above downward) roughly perpendicular to the zygoma for the vertical plane. A protractor was used for computing the angles. For the vertical angle the straight edge was placed flush along the surface of the vertical sliding bar of the zygometer so that the shaft of the needle passed through its midpoint and the external or free tip of the needle registered the angle. For the horizontal angle the surface of the lower arm of the zygometer was used as a base, and the midpoint of the straight edge of the protractor approximated to the needle shaft. With these two flat surfaces as bases from which to measure, the difficulties in accurately estimating the angles arising from the curves in the contour of the face were in great measure overcome. In spite of these efforts to establish a uniform procedure it was found that the angles in corresponding planes on the right and left agreed within a margin of error of 3 degrees in only fifty-three of the eighty-one cases in which both sides were measured. Of the other twenty-eight cases, twenty-one varied within 10 degrees and the remaining seven showed a discrepancy of from 10 to 30 degrees. The error seemed as great in one plane as in the other. This variation is an evidence of how markedly the two sides of the skull may differ. The depth at which the nerve was reached varied between 3 and 3.5 cm. from the surface. In the author's opinion a penetration greater than 3.75 cm. would be attended with considerable risk of damaging important structures through the passage of the needle point into the posterior part of the orbit or nose.

Subzygomatic injection of the maxillary division from the 3.5-cm. mark. To inject the supramaxillary nerve the needle is inserted at the 3.5-cm. mark on the lower border of the zygometer. The point should be directed inward at an angle of 88.5 degrees in the horizontal plane and 115 degrees in the vertical plane, as described. The needle passes below the zygoma. At this point it may be obstructed at once by the coronoid process of the mandible. In such case, opening of the jaw will allow the needle to pass. The vertical angle should then be increased a trifle, the needle point being thus slightly deflected above the exact point at which the nerve is to be sought. At a depth of about 4.5 cm. the pterygoid plate will be met. Next, the vertical angle should be decreased slightly by lowering the needle point. The point should then be slid forward over the upper anterior edge of the pterygoid plate into the sphenomaxillary fissure where, at a depth of from 5 to 5.5 cm., the nerve is reached. The sensation of sliding forward into a cleft over the edge of the pterygoid plate is very striking and makes the experienced operator feel sure of a successful injection. In the four cases in the author's series in which it was impossible to transfix the nerve by this route, the interference seemed to be due to an anterior development of the pterygoid plate which prevented the needle point from passing in front of it with any chance of hitting the nerve. The dangers in the use of this method are

two fold. If the needle point is held too high and inserted more than 3.5 cm., it may enter the orbit through the posterior part of the sphenomaxillary fissure; if it is held too low and advanced too far, it will pierce the thin, bony walls of the nasal cavity or pass through the sphenopalatine foramen.

Subzygomatic injection of the maxillary division from the 5-cm. mark. The second approach to the superior maxillary division of the trigeminus is through a point 5 cm. anterior to the external auditory meatus. The zygometer is in the same position as in the previous method and the angle of the needle shaft to the skin is measured in the same way, from above downward and from before backward. In the series of 120 injections on sixty cadavers, the average for the horizontal angle was 87 degrees and that for the vertical angle was 138 degrees. There was no variation of more than 10 degrees between the angles at which the nerve was reached on the right and the left sides. Fifty-five of the sixty cases showed a variation between the two sides of less than 5 degrees. In every case it was possible to reach the nerve. The point of entrance of the needle is so far forward that the instrument must be passed below the malar, which fact accounts for the larger vertical angle. In general, this is the route used in the intra-oral method advocated by Schlosser and Ostwald, this method being an extra-oral modification of their technique.

In the dissecting room it is the author's practice to stand behind the subject's head during this procedure. The little finger of the hand opposite the side injected is inserted in the mouth, pressing up into the angle bounded posteriorly by the coronoid process, laterally by the malar bone, and internally by the superior maxillary bone. The anterior edge of the vertical movable bar of the zygometer is placed on the 5-cm. mark on the upper and lower arms. If the shaft of the needle is held roughly in line with this anterior edge from behind downward and forward, a horizontal angle of about 95 degrees with the skin surface is produced. The wide vertical angle which the needle must take to pass under the masseteric border of the malar bone and at the same time avoid penetrating the buccal mucous membrane closely approximates the 135 to 140 degrees necessary to reach the nerve. As the needle is inserted, the finger in the mouth directs the point upward along the lateral wall of the maxillary antrum into the sphenomaxillary fissure and the foramen rotundum. The nerve is reached just after it leaves the foramen. At first the vertical angle should be increased to about 140 or 145 degrees and the needle point directed high so that it first encounters the upper anterior edge of the pterygoid plate. The vertical angle is then decreased to 135 or 140 degrees and the needle point directed slightly forward and downward until it slips anterior to the upper curved edge of the plate into the sphenomaxillary fissure. Here, at a depth of 5.5 cm., the nerve is encountered lying in a mass of fat and muscle. When once the pterygoid plate has been passed,

great care must be taken not to seek the nerve too deeply. The needle should never penetrate to a depth of more than 6 cm. from the skin surface for its point may be easily forced upward through the sphenoidal fissure and it may pierce the optic nerve or the internal carotid artery. While the angles of approach are remarkably uniform, and in the dissecting room the nerve was more certainly and quickly reached by this route than by any other, its use cannot be recommended unreservedly. When the pterygoid plate has been passed no bony landmarks may be felt. Reckless probing with the needle point at too great a depth will almost certainly result in damage to vital structures. It is this procedure more than any other which requires practice on the cadaver to insure its safe performance.

Suprazygomatic injection of the maxillary division. The third avenue of approach studied was suprazygomatic. With the zygometer in the standard position, the superior border of the zygoma and the temporal border of the malar bone are outlined by palpation. The apex of the angle formed by the juncture of these two bones is approximately 3.5 cm. anterior on the base line of the zygometer. This point being used for the insertion of the needle in a series of sixty injections in thirty-two cases, the average angle in the horizontal plane was 100 degrees, and in the vertical plane, 87 degrees. In two cases it was found impossible to reach the nerve trunk by this approach on either side. In twenty-three of the thirty cases the right and the left angles averaged within 5 degrees. In the other seven cases the right and left angles conformed within 10 degrees.

The needle is inserted above the zygoma at the 3.5-cm. mark almost perpendicularly in the vertical plane and slightly forward in the horizontal plane. The point impinges first on the posterior wall of the maxillary antrum and is carried along this wall and slightly downward to pass under the upper anterior curved edge of the pterygoid plate. By holding close to these two bony landmarks, the nerve is reached at about 4.5 cm. from the surface. If the needle is inserted too far, the lateral wall of the nose may be pierced. This, however, is not a serious mishap. The needle is at all times well below the level of the optic nerve and anterior to the larger blood vessels. This is therefore a safe procedure and the angles are fairly constant. However, because of the number of trials required in many cases before the nerve could be reached and the total failure in two of thirty-two, it is feared that clinically this method may not be as satisfactory as was hoped.

Injection of the mandibular division. For injection of the mandibular division of the trigeminal nerve only one approach was considered. Injection of this branch is relatively so simple and satisfactory that no other method is needed. With the zygometer in the standard position, the 2-cm. mark on the lower bar was selected. This corresponds approximately to the point of election described by Levy

and Boudouin. Through this point, 162 injections were made on eighty-one cadavers. The nerve was easily reached in every case. The horizontal angle averaged 61 degrees, and the vertical angle 108 degrees. In fifty-two of the eighty-one cases the angles for injection on the left and right corresponded within 5 degrees, and in twenty-six within 10 degrees. In three cases the variation was more than 10 degrees. In the 3.5-cm. approach to the second division the angles measured in fifty-three of the eighty-one cases were equal within 5 degrees right and left. In forty of these fifty-three cases in which the second division measurements were in accord on either side the third division measurements also were closely similar. These figures demonstrate the variability of structures on the opposite sides of the skull.

The needle is inserted below the zygoma opposite the 2-cm. mark on the lower bar. The direction is perpendicular to the skin in the horizontal plane and a little upward in the vertical plane. When once the zygoma has been passed, the needle point should be deflected slightly upward to strike the floor of the middle fossa. This bone is followed backward, bearing at the same time somewhat forward to avoid the middle meningeal artery which passes through the foramen spinosum just posterior to the foramen ovale, until at a depth of 4.5 cm. the nerve is reached. By thus keeping the needle point high, it was possible in every case studied to inject the entire ganglion through the foramen ovale if such a procedure was deemed necessary. If it seems desirable to affect only the third division, the needle point should be held a trifle lower. The nerve will then be pierced somewhat beyond its exit through the foramen. If the direction of the needle is accurate, the nerve will always be reached within 5 cm. of the surface. The needle point should never be allowed to penetrate to a greater depth than 5 cm.

GEORGE E. SUTTON, M.D.

Gilpatrick, R. H.: *Ankylosis of the Jaw*. Boston *M. & S. J.*, 1922, clxxxvi, 374.

The author describes the case of a boy, 15 years of age, who entered the clinic with an ankylosis of the inferior maxilla. At 1 year of age he had scarlet fever followed by a double mastoid infection for which he had been operated upon twelve times. Since the second year of life there had been some limitation of motion in the jaw.

Examination revealed a number of scars about the mastoid region on either side and a complete facial paralysis on the right side. The lower jaw was immovable, and the skiagram revealed a bony union of the right and a fibrous ankylosis of the left temporo-mandibular joint. The lower jaw was of the infantile type. The boy was well developed and well nourished although he had subsisted on soft food for the past six years.

Operation was done under intratracheal anesthesia induced with gas and ether. An incision 1½ in. long was made in front of the right ear, from a

point $\frac{1}{4}$ in. below the zygoma upward. The space beneath the zygoma was found filled with new bone completely surrounding the coronoid process. The zygoma was divided in front and elevated. The new bone was rasped out and the condyle of the jaw removed. It was necessary to remove the coronoid process before the jaw could be opened. A flap with its base downward was secured from beneath the skin in front of the incision, carried over the stump of the condyle, and sutured with fine catgut to the pterygoid muscles. Convalescence was prompt and the wound healed by first intention.

In this case, as in many others, middle ear suppurations had spread forward, involving the temporomaxillary joint and producing hypertrophic arthritis. Although the temporal and masseter muscles had been in disease for about six years, there was no impairment in their function. If there had been osseous union on both sides requiring a double arthroplasty an undesirable side-to-side movement would probably have resulted. WILLIAM J. PICKETT, M.D.

NECK

Lahey, F. H., and Clute, H. M.: The End-Results of the Surgical Treatment of Forty-Eight Cases of Tuberculous Cervical Adenitis. *Boston M. & S. J.*, 1924, CLXXVI, 288.

The authors base their study on 132 cases of tuberculous cervical adenitis treated in the Boston City Hospital and in private practice over a period of five years from June, 1915, to March, 1920. The present condition of forty-six has been ascertained. Of the traced cases the results were regarded as excellent in 43.4 per cent, only the cervical scar remaining as evidence of the original disease and the operation. Paralysis of the trapezius muscle due to involvement of the spinal accessory or the third and fourth cervical nerves as evidenced by deformity was present in 26.08 per cent. A persistent sinus was not found in any case re-examined.

Five patients showed paralysis of the depressor anguli oris muscle but experienced no discomfort from it, and the resulting deformity was not marked.

Two patients had died since operation, one from pulmonary tuberculosis, and the other from "intestinal trouble."

Eight patients were found to have persisting glands after the operation and two of these showed an active process in the glands.

The twelve patients with spinal accessory paralysis had been operated on by various surgeons. In two of these cases bloc dissection had been done.

There are cases of tuberculous cervical adenitis which will demand bloc dissection for cure but there are also those which will yield to non-surgical measures such as hygiene, X-ray treatment, and tuberculin injections. The majority of cases belong to an intermediate group and for these a combination of the two methods is advisable. The authors believe that active and prompt treatment in the early stage with attention to the tonsils and teeth and

other contributing factors will usually make surgical measures unnecessary. X-ray therapy is valuable not only for the firm, non-necrotic glands, but also for tuberculous sinuses resulting from liquefaction of the glands.

In the opinion of the authors, surgery should not be resorted to until X-ray therapy had been tried for a considerable period of time, provided the disease does not show any tendency to spread to neighboring glands. Only after other treatment has failed to reduce the size of the glands and the process has shown a tendency to spread should operation be undertaken, and then only the more extensively involved glands should be removed, the surrounding small glands being left for subsequent X-ray therapy. In the more advanced type of tuberculous adenitis with extensive involvement radical surgical removal is indicated although it may result in spinal accessory and cervical nerve paralysis with resulting deformity.

Satisfactory treatment will embody a combination of methods including attention to foci of infection, radiation, hygiene, conservative surgery, and especially an early attack on the condition.

V. G. BURGESS, M.D.

Glacanelli, V. U.: A Case of Congenital Cystic Lymphangioma of the Neck (Su di un caso di linfangioma cistico congenito del collo). *Rivista med.*, 1922, XXXVIII, 219.

The case reported was that of a female child 18 days old who, from birth, had a large rapidly growing tumefaction in the right antero-lateral region of the neck. When seen by the author, the growth was the size of a fetal head at birth, extended into the right parotid and supraclavicular regions, covered the right shoulder, and reached to the sternum. It was non-pulsatile, and caused neither respiratory nor gastric disturbances.

On the basis of the clinical findings and the examination of its contents the tumor was diagnosed as a cystic lymphangioma and surgically removed. It was found to be connected by adhesions to the sternocleidomastoid muscle, the neurovascular planes of the neck, the trachea, esophagus, and spinal column. It contained a serous, slightly yellow fluid and a number of cavities.

Microscopic examination demonstrated clearly the fibro-elastic structure of the cavities and their endothelial lining. Their contents consisted of coagulated lymph, red corpuscles, and numerous lymphocytes. Neoformation of lymph spaces and their successive transformation into cystic cavities were evident. The histologic study of the case shows therefore that such serous cysts begin in the interior of lymphocytic accumulations.

W. A. BRENNAN

Troitzky, W. M.: The Surgical Treatment of Exophthalmic Goiter (Die chirurgische Behandlung des Morbus Basedowi). *Monograph*, 1921.

The author reviews the present status of our knowledge with respect to exophthalmic goiter, dis-

cusses the surgical treatment of this condition, and reports his own observations. The twenty-four cases in which he has operated he divides into five groups according to their severity. The first group consists of three cases which were hopeless as regards the prognosis for life (emaciation extreme, weight 32 kilos, choreic condition, cardiac defects with disturbed compensation); the second group, of five cases with secondary functional disturbances of the vessels, the lungs, and other organs; the third group, of ten typical cases of exophthalmic goiter; the fourth group, of five cases with partial symptoms of exophthalmic goiter; and the fifth group, of one case of the so-called "formes frustes" type with a pulse rate of 96-108, exophthalmos, Moebius's sign on the right side, tremor, marked hyperhidrosis, etc.

In almost every case internal treatment had been given with more or less benefit. The surgical treatment consisted of twenty-two hemistrupectomies, three enucleations, twenty-three ligations of the superior and inferior thyroid arteries, and one ligation of three arteries. The permanent results obtained were as follows: Group 1: a cure in two cases and improvement in one case; Group 2, a cure in two cases, improvement in one case, and no effect in one case; Group 3, a cure in four cases, improvement in one case, and decided improvement in two cases; Group 4, a cure in three cases and decided improvement in one case.

With regard to the relationship between the duration of the disease and the results obtained, the following facts were noted:

Of five cases in which the disease was of less than three years' standing, a cure was obtained in three cases, improvement in one, and no result in one. Of five cases of from three to five years' standing, four were cured and one was greatly benefited. Of five cases of from five to ten years' standing, a cure was obtained in two cases, decided improvement in one, and improvement in one. Of two cases of more than ten years' standing, both were cured.

The author recommends surgical treatment for all cases of exophthalmic goiter. SERCK (Z).

Romanis, W. H. C.: *The Surgical Treatment of Exophthalmic Goiter*. *Lancet*, 1922, cclii, 471.

Although it cannot be denied that some underlying primary cause is probably responsible for the

change in the thyroid gland in exophthalmic goiter, it is the alteration in the gland which constitutes the basis of the symptoms of Graves's disease. The thyroid is the "symptom factory."

Graves's disease is characterized by a certain amount of eye change, a rapid pulse, and definite cardiac changes. When the toxic symptoms are so mild as to raise a doubt as to the identity of the condition a microscopic examination of the gland should be made to determine whether hyperplasia and the changes in the epithelium characteristic of exophthalmic goiter are present.

Ligation of the thyroid arteries can be dismissed in a few words as ineffective. It is difficult and dangerous in those cases in which it is necessary, and unnecessary in those cases in which it would be easy and safe. The use of local anaesthesia is contributing to the present decrease in the mortality. In the severe cases medical treatment is valuable in the preparation for operation. Great reluctance of the patient to be operated on, mental changes such as delusion and melancholia, an age of over 65, the presence of oedema due to a failing heart, diabetes or some other grave constitutional disease, are contra-indications to operation.

Removal of large portions of the gland, i. e., the larger lobe and a sixth to a half of the opposite lobe, is the procedure of choice. The retrolaryngeal lobe should also be removed, at least on one side. The parathyroids may be completely ignored. The danger of leaving too little of the thyroid gland is not real.

A fine tube is inserted through a separate opening and left in place for twenty-four hours. The salmon-gut sutures with which the operative wound is closed are removed in forty-eight hours. The patient is made to sit almost upright in bed. For forty-eight hours only cold liquids are given. A long stay in bed and four months of very easy life are essential parts of the treatment. Physiological results can be measured by estimations of the basal metabolic rate, which before operation averages 40 to 80 per cent above normal and after operation falls within a few weeks to an average of 25 per cent above normal. Occasionally it may fall to slightly below normal, but up to the present time no case in which this has occurred has shown clinical signs of hypothyroidism. J. D. ELLIS, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Wildegans: *Resections of the Thorax in Cases of Old Empyema of the Pleura* (Ueber Thoraxresektionen wegen veralteter Pleuraempyeme). *Arch. f. klin. Chir.*, 1921, cxvii, 444.

Wildegans reports on 222 cases of pleural empyema treated in Koerte's surgical clinic from April 1, 1904, to December 31, 1920. Among these were

forty-three cases of influenzal empyema. There were fifty-seven deaths, a mortality of 25.6 per cent. Fourteen of the patients who died had influenzal empyema.

In spite of primary early resection of the ribs, chronic fistulae developed in fifteen of the 222 cases. In three, there was tuberculosis, and in twelve, pyogenic infection only. A purulent discharge was present in all or nearly all. In two cases the ex-

piratory power of the other lung was not sufficient for re-inflation. The other possible causes for the fistula formation did not apply with equal force to all these failures.

If the sound still reveals an unhealed empyemic cavity three months after primary resection of the ribs with proper after-treatment, radical operation is indicated. Local injection, with slight narcosis after the skin incision was made, was found to be the best anasthetizing procedure in most cases. The preferred incision was that of Schede for unilateral thoracoplasty. In one case four lower ribs were resected and the upper part of the pus sac was obliterated by attaching the lung to the chest wall.

The Schede operation was combined with a stripping of the lung when this was possible without causing severe hemorrhage and without injuring the lung tissue. In other cases longitudinal or lattice incisions in the fat of the lung with a knife or cautery sufficed. Even the unstripped lung can expand. Twice there was pneumolysis.

It was difficult to influence bronchial fistulae. Of the fifteen patients treated by thoracic resection, one, a child, died after two days; twelve, among them one patient with a tuberculous empyemic fistula, were discharged cured and able to work. There is function of the lung on the affected side. Post-operative scrofulosis must be accepted. The author compares these results with Koerte's earlier results published by Voswinkel. Of twenty-six patients with chronic non-tuberculous empyema, nineteen (74 per cent) were entirely cured, four (15 per cent) were cured except for a small fistula, and three died. Of the eight infected with tuberculosis, four died of phthisis, three were considerably improved, and one, after ten years, is cured and able to work. The article gives abstracts of the case histories and a bibliography. SCHMIDT (Z).

Davis, B. B.: Carcinoma of the Breast, with a Consideration of Precancerous Conditions. *J. Am. M. Ass.*, 1922, lxxviii, 779.

A three- or five-year period without recurrence is an arbitrary standard. The author has had patients remain well for five, eight, nine, and ten years and then return with recurrence from which they later died. Duration of the lump and apparent progress of the disease are uncertain prognostic guides. Cancer begins painlessly and the lump is discovered accidentally, and may or may not be far advanced.

Rapid progress of one breast cancer and the mild course of another seem to bear some relation to the struggle between cancer cells and other body tissue cells. Cancer cells may become enveloped in a fibrous layer that smoothes and renders them inert. Probably in this way early malignancy may be cured spontaneously.

Local recurrences does not signify a hopeless case. Some of the author's patients are well after the removal of one, two, or three local recurrences.

The classical picture of adherent skin, retracted nipple, fixation to the pectoral fascia, and extensive axillary involvement are signs of advanced cancer and should be seen more rarely. The education of the public by the American Society for the Control of Cancer will favor early diagnosis, early operation, and better results. The examination of all women of cancer age by trained clinicians would decrease the number of non-operable cases and reduce the mortality from cancer of the breast, uterus, and lip.

A lump in the breast should be considered an emergency surgical condition. If the diagnosis is doubtful, it is better to remove a few breasts unnecessarily than to leave a malignant tumor. If, inadvertently, the surgeon cuts into suspicious tissue, the knife, other soiled instruments, and gloves worn by him and his assistants should be discarded for others. Suspicious tissue should be swabbed with carbolic acid or treated with the actual cautery and a more remote periphery selected. Avoiding cancerous tissue is difficult only in advanced cases. Many local recurrences arise from accidental cancer-cell implantation at operation.

Cancer extends centrifugally by the lymphatics and fascia planes, and not by the blood stream and skin. Hence a large skin area need not be removed. Skin grafting is never necessary except in advanced cases. With these points in mind the author describes the following operation which resembles the Handley operation in some particulars and differs from it in others:

A circular or wide elliptical skin incision is made 2 in. beyond the margin of the infiltrated area. A second incision is begun on the upper arm over the insertion of the pectoralis major and curved inward and downward to meet the elliptical incision. A third incision extends from the lower margin of the elliptical incision, downward and inward along the linea alba, almost to the umbilicus. The skin is dissected up, as free from the subcutaneous fat as possible, to the clavicle above, inward to the opposite side of the sternum, laterally to expose the digitations of the serratus magnus and the border of the latissimus dorsi, and downward to lay bare the upper one-fourth of both recti abdominis and the upper attachments of the external oblique muscle. Such undercutting of the skin permits the removal of the widest possible lymphatic-bearing area of fascia.

This extensive area is blocked out to the limits of the skin dissection and its entire periphery is raised and rolled inward toward the breast. Beginning in the axillary region the tendon of the sternal portion of the pectoralis major is divided at its humeral attachment. The muscle is then split below the clavicle and rolled inward. The coracoid membrane is cut, the coracoid insertion is divided, and the pectoralis minor muscle is completely removed. The axilla is cleared out by sharp dissection from the apex downward. If obviously cancerous glands adhere to the wall of the axillary

vein, the involved portion of vein is removed between ligatures. Fat and glands below the clavicle are dissected free from the artery and vein. The sternal fascia is stripped off far enough to expose the costal cartilages and the dissection is continued downward from the lower sternal end by reflecting upward the fascia covering the serratus magnus and latissimus dorsi. If the cancer is located in the outer quadrant, three to five of the upper digitations of the serratus magnus are removed.

Finally the central island is severed from the chest wall. The wound is kept dry to insure smooth healing. A small rubber drain is placed in a stab wound of the external skin flap a little below the axilla, and is removed after twenty-four hours. The skin is approximated at intervals, without tension, by means of three or four silk-worm-gut sutures, and the skin edge is brought into contact with a running interlocked stitch of horsehair. A large gauze dressing with a pad in the axilla to push the skin up and a thoracic jacket are applied. The arm is kept well abducted from the thorax and the elbow rests on a pillow. Use of the arm is encouraged from the first. If not contra-indicated, the patient is propped up in bed the second morning, and after the third or fourth day is allowed to be up in a chair a part of each day.

Routine postoperative deep roentgen-ray therapy is given at intervals of four weeks for six to ten months.

Operation is rendered futile by: (1) deep involvement of the chest wall; (2) fixation of the axillary mass; (3) very extensive skin involvement; (4) enlarged and fixed supraclavicular glands; (5) secondary growths in the lungs, liver, or other viscera; and (6) bone metastases.

Improvement of results may be expected when more operations are performed at the stage when the disease can be completely removed, and when we learn how to recognize and cure precancerous conditions. The author urges public propaganda, research to decrease the incidence of cancer, better general agreement as to what constitutes precancerous lesions, and greater co-operation between pathologists and surgeons. Every adenoma and fibro-adenoma should be removed.

WALTER C. BURKET, M.D.

Sistrunk, W. E.: Cancer of the Breast: The Results in 218 Operations. *J. Lancet*, 1922, n. 5, xlii, 75.

Sistrunk has studied the histories of 246 patients operated upon for cancer of the breast at the Mayo Clinic. The recurrences were mostly in the late cases, evidently because cancerous tissue was left in regions inaccessible to the knife. The highest percentage of cures and the infrequent recurrences were found in cases in which operation was performed early in the course of the disease, before glandular involvement could be demonstrated.

In the series studied local recurrences are known to have occurred in only 10.5 per cent of the patients

in whom no glandular involvement could be demonstrated at the time of operation. In the forty-six cases with local recurrences the glands were involved at the time of operation in 80.4 per cent. Of eighty-six patients operated on before the glands were involved, 64 per cent are alive from five to eight years after the operation and there are known recurrences in only six. Of 132 patients in whom the glands were found to be involved at the time of operation, 19 per cent are alive from five to eight years after the operation.

The highest percentage of deaths occurred among the youngest and oldest patients. The chance for cure seems definitely higher in patients over 50 years of age.

One hundred and four (73.3 per cent) of the 138 patients died from recurrences; six of the 218 patients died within six months after operation. By the end of the first year forty-six were dead; by the end of three years, ninety-two; by the end of four years, 107; and by the end of five years, 120.

At the end of five years twenty-nine of the 132 patients in whom glandular involvement was demonstrated at the time of operation were alive, and fifty-six of the eighty-six patients in whom the glands were not involved at the time of operation were alive. Regardless of glandular involvement, eighty-five of the 218 patients were alive at the end of five years.

H. A. MCKNIGHT, M.D.

TRACHEA AND LUNGS

Clendening, L.: Abscess of the Lung. *Laryngoscope*, 1922, xxii, 128.

Clendening states that lung abscess is not difficult to recognize provided the following factors are taken into account: (1) a possible preceding cause; (2) the predominance of symptoms over signs; (3) the X-ray findings; (4) the bronchoscopic findings; (5) the character of the sputum; and (6) the findings of exploratory puncture.

The most important etiological factor is a preceding tonsillectomy or a nose operation. Next in importance is inspiration of a foreign body, and third, pneumonia. Lung abscess may follow tonsillectomy even when the operation is performed with the greatest care. The author believes that motor-driven anaesthesia apparatus cause pneumonia and lung abscesses by forcing pus and septic material into the lung. One case of lung abscess due to systemic infection following tonsillectomy is cited.

In the diagnosis a consideration of the symptoms is of first importance. The history includes a continued cough, copious expectoration, and afternoon fever. Abscesses following pneumonia have a foul odor, but those following tonsillectomy are odorless. Associated with these signs are loss of weight and anaemia.

The physical signs are few and usually are present over a very small area. The most constant sign is a localized area of rales. The X-ray is of immeasurable diagnostic value.

A bronchoscopic examination should always be made to locate a foreign body, if present, and to obtain further information as to the location of the abscess. Sputum examinations showing the absence of tubercle bacilli have a negative value.

A positive exploratory puncture clinches the diagnosis. The pus is very thick and mixed with air and tissue.

The treatment of lung abscesses is not particularly satisfactory. The author states that the surgical method of resecting a rib, stitching the pleura, and later opening the abscess has not given very good results. The best procedure is artificial pneumothorax. This Clendening has used with a successful result in one case. R. C. Wenn, M.D.

Lifenthal, H.: Resection of the Lung for Suppurative Infections, with a Report Based on Thirty-One Operative Cases in Which Resection Was Done or Intended. *Ann. Surg.*, 1911, lxxv, 257.

Chronic pulmonary suppurations wholly or partially of the bronchiectatic type are rarely curable without the extirpation of the pathologic focus.

The author reports thirty-one cases with a mortality in single lobe involvement of 42 per cent. The danger is much greater when more than one lobe is infected or other complications are present. In ten cases in which the disease was not limited to a single lobe the mortality was 70 per cent.

Palliative operations, such as the formation of a bronchial fistula, may be followed by improvement but rarely by an apparent cure.

The most common cause of the disease is infection due to the aspiration of infected material during tonsillectomy.

Children and young adults are by far the best subjects; after the age of 35 the operation becomes more hazardous because the recuperative powers of the patient are impaired. In all cases of adults digitalis should be administered in the forty-eight hours preceding operation.

A patient with bilateral suppuration would be considered an unsuitable subject for resection of the lung. Cases in which there is dense infiltration close to the mediastinum are particularly hazardous.

Other contra-indications are cardiac and renal disease, and syphilis.

Within limits, the greater the surgeon's knowledge regarding the location and character of the disease before he operates the better. The three essential facts for him to know are: (1) whether the disease is in the upper or the lower part of the chest; (2) whether it is near the hilum or the periphery; (3) whether the cause of the suppuration is a foreign body or a tumor in the bronchus.

The X-ray may show all these things. Sometimes, however, the bronchoscope will reveal what the X-ray cannot disclose.

Two days of postural preparation are desirable except in rare cases of emergency. When there has been a considerable daily discharge the patient usually knows how to empty out the bronchial

passages. The emptying should be done at least twice daily and also an hour before operation.

The patient's blood must be grouped and a suitable donor secured.

After the induction of anesthesia with nitrous oxide and oxygen, ether should be used to secure complete relaxation and deep narcosis and then nitrous oxide with only a little ether according to necessity. The author has abandoned the intratracheal method for the simpler and less dangerous intrapharyngeal method.

The primary incision in the seventh or eighth interspace from just behind the angle of the ribs almost to the costal cartilages is made through the skin. Then, beginning anteriorly, the muscles are quickly divided, the first assistant taking up the bleeding points and also the urent vessels which cross the line of incision. The muscles having been divided, a short incision is made in the intercostal tissues to the most easily accessible part of the wound, hugging closely the upper border of the rib just below the proposed entrance into the pleura.

The pleural opening is lengthened with the scissors and the ribs are drawn apart a little with blunt retractors. A rib-spreader is inserted, and slowly separated until in one or two minutes the widest possible space has been secured. Often a separation of 6 or 7 in. may be obtained easily, and even without cutting a rib sufficient exposure for the operation may be obtained. For a lung resection, the approach must be very wide, especially when the upper lobe is to be dealt with. In such cases the incision over the seventh or the sixth intercostal space must be increased by continuing it posteriorly and upward parallel with the posterior border of the scapula and about an inch or more from it.

If this is to be the first stage only, the healthy, non-adherent lobe and the costal pleura with which it is normally in contact should be briskly rubbed with gauze and the lobe then surrounded with a single layer of iodoformized gauze about 3 in. wide, placed one beside the other, the ends long enough to reach outside the chest wall. These pieces of gauze are transfixed in one mass with a safety pin which is left outside the muscular layer of the chest. The gauze is withdrawn in forty-eight hours. The skin is sutured to cover in the gauze and the safety pin.

One week after the first operation the second stage may be undertaken. By this time firm adhesions will have formed between the healthy lung and the thoracic wall, and with the danger of postoperative lung collapse the danger of mediastinal flapping is also banished.

The necessity for differential pressure having passed, the second stage of the operation, the lobectomy itself, can be done with the least possible respiratory embarrassment, and even with ordinary inhalation anesthesia.

The pulmonary ligament can be quickly divided with the scissors. The pedicle of the lobe is now

isolated, carefully palpated, and secured with chain ligature sutures of silk. In some cases it can be crushed with a powerful clamp. In others it is too thick and tough for any clamp, but even then can be crushed in section, each section being caught immediately after crushing with a large hæmostatic needle and firmly ligated. A large stump should be formed by sectioning the lung tissue, whether diseased or not, an inch or even more distal to the ligatures in the pedicle itself. When ablation is complete the stump is carefully inspected and all apertures, especially the bronchial openings, are wiped out with pure phenol.

The stump is surrounded with a rubber dam which is brought to the surface. The ends of the silk ligature which have been left long form a bundle of ten or twelve strands. These are tied together with another piece of silk placed so that a large transfixing pin will lie upon the chest wall beneath the skin, causing just enough tension upon the pedicle to steady the mediastinum when the patient coughs or strains. The rubber dam tunnel is packed with iodoformized gauze. In addition to this opening for drainage, a smaller one is made through the lower chest wall posteriorly just above the diaphragm and a No. 28 French catheter is inserted. The skin is never sutured.

The tube from the lower part of the chest is clamped after the lobe of the lung has been distended by the intrapharyngeal pressure, and as soon as the patient is in bed this tube is carried beneath the surface of antiseptic liquid in a vessel on the floor.

After almost every lobectomy there is an outpouring of bloody serum into the pleura. Therefore unless the patient is in exceptionally good condition, with normal blood pressure and hæmoglobin, blood transfusion is necessary.

Anærobic infection and tension pneumothorax are dangerous complications which follow this operation. Oxygen flowing through the chest cavity may be tried, and negative pressure in the chest may be produced by a paracentesis with the tube under water and the patient straining. Hæmorrhage from the stump must also be borne in mind.

The stump finally sloughs off and a bronchial fistula may form but the latter usually closes.

The author reports his cases and illustrates them with roentgenograms. H. A. MCKNIGHT, M.D.

Karstroem, G.: A Case of Pulmonary Tuberculosis in a Child Diagnosed with Difficulty from Interlobar Empyema (Ein Fall von Lungentuberkulose beim Kinde mit schwieriger Differentialdiagnose gegen interlobares Empyem). *Hygiea*, 1921, lxxviii, 517.

The roentgenogram of an interlobar exudate may be easily mistaken for an infiltrative pulmonary tuberculosis progressing from the hilus of the lung. The differential diagnosis is of the greatest importance because of the frequency of this form of tuberculosis in children.

The case reported was that of a child of 3½ years in which the roentgenogram showed a markedly dense oval shadow with a sharp upper and an indistinct lower outline in the center of the right pulmonary field between the third and fifth cervical vertebrae as seen from the front. The physical examination revealed very marked dullness over this area which extended down to the base of the lung and weakened respiration. Aspiration withdrew pus containing bacteria.

In view of the roentgenological finding and the positive diazo and cutaneous reactions, a probable diagnosis of pulmonary tuberculosis with cavities was made, particularly because tubercle bacilli and amphoteric breathing were demonstrable. The autopsy substantiated this diagnosis. PEPPER (Z).

Rist, E., and Strohl, A.: Gaseous Resorption and the Maintenance of Sub-Atmospheric Pressure in the Pleura (Sur le rôle de la diffusion dans la résorption gazeuse et le maintien de la pression sous-atmosphérique dans la plèvre). *Presse méd.*, Par., 1922, xxx, 60.

Textbooks on physiology are by no means explicit regarding the physical forces which maintain approximation of the pleural leaves. The term "pleural vacuum" is often used but is manifestly incorrect.

In discussing the various attempts which have been made from time to time to analyze the intrapleural atmosphere the authors state that if an analysis of the gas is made at the end of a certain time in cases of aseptic closed pneumothorax a mixture will be found which varies little in composition, whatever the gas introduced into the pleural cavity. Pietro's analysis was as follows: carbon dioxide, 6 per cent; oxygen, 6 per cent; nitrogen, 88 per cent. The nitrogen content is higher than that of the atmospheric air (79 per cent). Many authors have been unable to explain this paradox but Rist and Strohl show that the special conditions necessary for pleural functioning are dependent upon it.

The physical laws of the diffusion of gases explain peculiar biological processes such as the maintenance of contact of the pleural serosa and the resorption of different gases introduced into the body. This theory of diffusion proves also that what are considered by some as paradoxical phenomena are natural and necessary phenomena. There is no need to invoke the aid of a "pleural vacuum" or other unknown force of nature to explain them.

W. A. BRENNAN.

Kornilowitsch, N.: A Rare Case in Which a Bone Remained for Eight Years in the Inferior Ramus of the Left Bronchus (Ein seltener Fall von achtjährigem Verbleiben eines Knochens im Ramus inferior bronchi sinistri). *Verhandl. d. path. Ges.*, Petrograd, 1920.

The author effected a cure in a case in which a bone 2.3 cm. long, 1.0 cm. wide, and 4 mm. thick had remained in the inferior branch of the left bronchus for eight years. The patient was a woman 35 years of age. The swallowing of the bone was followed by

violent coughing and the expectoration of blood. Several days later coughing and fever set in and continued for eight years with only occasional alleviation. During the last four years the sputum had had a foul odor. The patient had been treated by several physicians for pulmonary tuberculosis.

WALKER (Z).

PHARYNX AND OESOPHAGUS

Jiráček, A.: Closing of Defects After Operations on the Pharynx. (*Deckung von Defekten nach Pharyngotomien*). *Comp. Ill. tisk.*, 1921, ix, 781.

A 63-year-old man was operated on in May, 1919, for sarcoma of the right tonsil. In May, 1920, a second operation was done for recurrence which filled the entire hypopharynx, encroached upon the root of the tongue, and interfered with respiration. After extirpation of the tumor and repair of the right posterior wall of the pharynx by means of a flap of skin there remained a pharyngeal fistula measuring 1 by 1 cm. which could not be primarily closed. The endeavor to obliterate this opening with two pedunculated skin flaps according to Israel's method was only partially successful. After healing of the wound the defect was about half its original size.

As the margin of the fistula was of scar tissue, a second attempt was then made to repair it by means of a four-sided, pedunculated cutaneous flap, two and one-half times as large as the defect, taken from the region of the clavicle and the upper part of the breast and cut so that its pedicle was below the fistula of the pharynx. The lower half of the flap was freshened on its lateral margins, turned up at an angle of 180 degrees, and sutured to the freshened margins of the fistula with the skin side inward. Fourteen days later the pedicle of the flap was divided, the second half of the flap was again turned over at an angle of 180 degrees, and the wound surface of the first half thus covered. A permanent closure was obtained.

KINDL (Z).

Seiffert, A.: Finding of the Tract in Severe Forms of Stenosis of the Oesophagus. (*Aufindung des Wundes bei hochgradigen Oesophagostenosen*). *Monatshefte f. Chir.*, 1921, lv, 1034.

The frequency of erosion of the oesophagus markedly increased in Germany during the war

because of the practice among the people of making soup at home. Accordingly, diaphragmatic stenoses of the oesophagus were also seen more frequently than formerly. Other oesophageal stenoses are of less importance.

The stenosis may be funnel-shaped, tubular, straight, curved, or irregular. If erosions are given proper treatment severe strictures will not occur. The best plan is to begin the use of bougies after the subsidence of the acute symptoms (after one to two weeks), using very fine bougies stiffened with a stylet. For finding very small eccentrically situated stenoses, Hacker recommends the introduction of a bundle of the smallest sounds through a funnel tube, first one and then another being advanced slowly. The oesophagoscope is also of value in finding the openings to the narrow stenoses. The most conservative method is that of allowing the patient to swallow a thread to which a bead is attached, which is then drawn out through a gastrotomy wound.

If these methods fail, the author recommends the following procedure: A minute bead is attached to a very thin (0.4 mm.) steel wire and the wire is pushed through a small metal tube with a circumference only a little larger than that of the bead. This tube, which must be bent because of the curvature of the pharynx, is then introduced with the left hand like a bougie, and in a palpatory way the wire is pushed forward with the right hand. By the slight rubbing of the wire in the tube it is soon determined whether the bead is up against the wall or in the lumen. As soon as the bead has advanced any distance, the tube is made to follow. In this manner it is possible to enter the stomach gradually and thereby to pass several strictures.

The dilatation of the stenosis is accomplished by drawing the tube back over the sound, fastening a perforated olive of a somewhat larger caliber to the wire, and then pushing the olive downward into the stomach with the aid of the tube. This is done several times with olives of gradually increased size until the dilatation can be completed in the usual way. For cases in which a gastro-enterostomy has been done the author suggests the use of a bent hooklet with the aid of which the wire with the bead can be easily found and withdrawn. GANGL (Z).

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Boppe, M.: Hematomata and Abscesses of the Anterior Abdominal Wall (*Hématomes et abcès de la paroi abdominale antérieure*). *J. de chir.*, 1921, xix, 215.

From a topographical viewpoint abscesses of the anterior abdominal wall may be divided into: (1) those of the superficial subcutaneous tissue, (2) those

of the sheath of the rectus muscle, (3) those of the prevesical space or the so-called abscesses of the space of Retzius; and (4) those of the cellular subperitoneal tissue.

Abscesses of the superficial subcutaneous tissue are usually of furuncular origin. They may give rise to a marked lymphangitis and are commonly situated about the umbilicus. It is well known that such peri-umbilical infections are serious as

they may produce peritonitis or septic thrombosis of the umbilical vein.

Infections of the sheath of the rectus muscle may follow operative procedures or develop by extension from superficial infections. Hematomata in the rectus sheath may be caused by incomplete hemostasis at operation or rupture of the fibers of the well-vascularized rectus muscle occurring as the result of direct trauma or very violent contractions of the muscle.

Abscesses may develop in the prevesical space primarily or may be secondary to an abdominal infection. Fractures of the pubis with infection of the resulting hematoma give rise to an important group. Rupture of the membranous urethra and abscesses resulting from osteomyelitis of the pubis may cause primary infection of the cave of Retzius. The interest of suppuration secondary to abdominal infections rests in the chronicity of the process. The abscesses form true inflammatory tumors which are very difficult to differentiate from true tumors of the abdominal wall. They arise most commonly from retained catgut or other foreign bodies within the abdomen.

LOYAL E. DAVIS, M.D.

MacLennan, A.: The Radical Cure of Inguinal Hernia in Children: with Special Reference to the Embryonic Rests Found Associated with the Sacs. *Brit. J. Surg.*, 1922, ix, 445.

Since August, 1914, the author has operated 1,038 times on 978 children for the radical cure of inguinal hernia. In eighteen cases, nineteen sac bodies were examined for embryonic rests with a positive result; one child had an adrenal body on each sac of a bilateral hernia. In fourteen of these cases the tissue was adrenal cortex.

The more usual adrenal rests closely resemble tomato seeds. They adhere to the outer side of the sac between the vessels of the cord and the vas. A bilobar nodule is uncommon. The ultimate fate of these accessory glands is probably calcareous degeneration. To date, they have been found only in males.

The article is supplemented with illustrations showing different types of embryonic rests.

E. C. ROBITSHEK, M.D.

GASTRO-INTESTINAL TRACT

Moynihan, B., and Walton, A. J.: The Treatment of Gastric Ulcer. *Lancet*, 1922, ccl, 207.

Hemorrhage and perforation are the only characteristic manifestations of an acute gastric ulcer. If a gastric ulcer is found at operation or autopsy, it is not necessarily accountable for symptoms that have been present for months. The relationship between acute and chronic ulcers is not definitely known.

Chronic gastric ulcer is rare. Its incidence is half that of duodenal ulcer and it occurs twice as often in men as in women. Incorrect diagnosis is responsible for many useless gastro-enterostomies, the

patient being made worse instead of better. Following the operation jejunal ulcer may develop and add to the discomfort. There are but two methods of making an unequivocal diagnosis of gastric ulcer: by means of the roentgen-ray and by inspection at operation. If the diagnosis is not certain, the results of medical treatment may not be correctly evaluated.

The medical treatment given at the present time is woefully inefficient; for the rich it is possible, for the poor it is scarcely obtainable.

The preparation of the patient for operation is of great importance. In addition to routine examinations, the teeth and sinuses should be examined for foci of infection and the patient given large quantities of glucose or a direct transfusion of blood to overcome the effects of weakness, wasting, and desiccation.

The surgical procedures which have been adopted are the following: (1) gastro-enterostomy; (2) excision of the ulcer; (3) gastro-enterostomy combined with excision; (4) gastro-enterostomy combined with destruction of the ulcer by means of the cautery (Balfour's operation); (5) median resection of the stomach (sleeve resection); (6) gastro-enterostomy combined with jejunostomy (Moynihan's operation); and (7) partial gastrectomy.

Gastro-enterostomy has been the most frequently performed of these operations. Two views are held as to the manner in which it produces its results. According to one, it is purely mechanical in its effects, giving relief by preventing retention, since it is most efficient in cases in which marked obstruction is caused by a scar at or near the pylorus. The second view is that it possesses a "physiological" action by alkalizing the gastric contents. In Moynihan's opinion there is no reason for the belief that an alkaline medium favors the healing of a gastric ulcer.

It is an interesting fact also that when gastro-enterostomy has been performed for duodenal ulcer a gastric ulcer may develop. Moynihan believes that the procedure should be reserved for cases in which the ulcer is distal to the opening to be made, in which no reasonable doubt can be entertained as to the benignity of the ulcer, and in which the patient's condition renders a more extensive operation too dangerous.

Simple excision of the ulcer is unsuccessful because it is followed by obstruction due to the contraction and distortion of the stomach or because the ulcer recurs along the suture line.

Gastro-enterostomy combined with excision does not give an adequate number of satisfactory results and is by no means as good as Balfour's operation.

Balfour's operation consists of the destruction of the ulcer by means of the actual cautery and the performance of a gastro-enterostomy. According to the records at present available, this operation is simple, safe, and satisfactory in respect to after-results. Next to gastrectomy, Moynihan prefers the Balfour operation.

Median resection is sometimes followed by recurrence along the suture line as well as contraction and stasis of the stomach.

Gastro-enterostomy combined with jejunostomy is occasionally indicated in cases in which there is a large, firm, or perforating ulcer and the patient's condition is extremely poor. In such cases the author performs a gastro-enterostomy in "Y," making a very large opening in the stomach. The proximal part of the jejunum, forming the "Y," is opened by a small incision and through this a tube is passed downward into the intestine. The patient is fed through the tube until the ulcer is healed, when the tube is removed and the jejunostomy opening is closed.

In the author's experience gastrectomy is the most satisfactory operation. The mortality is low and the results are as near perfection as possible. No recurrence has been seen after this operation. The mortality is less than 2 per cent.

Conditions identical with acute gastritis and gastric erosions may arise in the duodenum. For these no operative treatment should be undertaken. The only possible exceptions are cases of severe repeated attacks of hæmatemesis in which another hæmorrhage would probably prove fatal. Under such circumstances no time should be wasted in looking for the lesion. The patient should be anesthetized, given a direct blood transfusion, and subjected to a posterior gastro-enterostomy with occlusion of the pylorus. The results obtained by this method in Walton's experience have been satisfactory.

Perforation is extremely rare in acute gastric ulcers. If it has occurred, the ulcer is chronic and simple suturing will not effect a cure; hence a gastro-enterostomy should always be performed.

Pyloric and duodenal ulcers are satisfactorily treated by posterior gastro-enterostomy. There are two possible objections to this treatment: (1) carcinoma may arise at the site of the ulcer; (2) the operation may be followed by gastrojejunal ulceration. Very often a carefully taken history will reveal the presence of a malignant change. If there is any doubt as to the nature of the lesion, a partial gastrectomy should be performed.

Most authorities place the frequency of gastrojejunal ulcers at 2 per cent. The mortality of a partial gastrectomy seems to outweigh the danger of a gastrojejunal ulcer. Ulcers on the lesser curvature are cured by gastro-enterostomy in only 40 to 60 per cent of the cases. If occlusion of the pylorus is added to the gastro-enterostomy the results are more satisfactory.

Hour-glass stomach is much more common in women than in men, is usually due to a simple ulcer, and is very often associated with ptosis. For this condition the choice of treatment lies between: (1) knife or cautery excision with gastro-enterostomy, and (2) partial gastrectomy. Excision alone is insufficient. If there is any suspicion of malignancy, partial gastrectomy is, of course, the opera-

tion of choice. Occlusion of the pylorus with silk mattress sutures is temporary only, lasting about two months. Permanent occlusion is unnecessary.

CLAYTON F. ANDREWS, M.D.

Kreuter, E.: Gastropexy with the Ligamentum Teres of the Liver as a Preliminary Operation for the Roentgen Treatment of Certain Gastric Carcinomata (*Gastropexie mit dem Ligamentum teres hepatis als vorbereitende Operation zur Röntgenbehandlung gewisser Magenkarzinome*). *Zentralbl. f. Chir.*, 1922, cliv, 156.

The Erlangen Clinic was skeptical regarding the roentgen treatment of malignant gastro-intestinal tumors up to the time of the introduction of the method of Wiertz, which produced such good results with the coppering and subsequent roentgenization of rectal carcinomata that the local process became clinically cured. In the stomach, the conditions for X-ray treatment are considerably less favorable because of the mobility of the organ. To obviate this difficulty, the author fixed the inoperable but sufficiently movable gastric carcinoma in the region of the umbilicus by means of the ligamentum teres in the following manner:

An anterior or posterior anastomosis was made, the ligamentum teres was detached close to the liver and bluntly dissected from the peritoneal reduplication up to its origin at the umbilicus, and at a suitable location, the ligament was applied around the tumor like a sling and sutured to the umbilicus. In order to keep the tumor from slipping out, the gastric wall was folded over the ligament. The value of this procedure must be tested by further experiments.

BODA (Z).

Kusnezowski, N. J.: Myomata of the Stomach (*Zur Lehre von den Myomen des Magens*). *Jahrbuch f. Chir.*, 1922, l, 78.

This article is based upon the following case:

A woman, 38 years of age, entered the gynecological clinic on account of severe hæmatemesis and hæmorrhage from the rectum. For four years she had noticed a swelling in the region of the stomach which had gradually increased in size. One and one-half years ago she had an attack of severe pain accompanied by profuse hæmatemesis. At this time the tumor seemed to disappear but soon became evident again. This occurrence was repeated. At the time the patient entered the clinic her condition was very poor. Seven days later she died with symptoms of pronounced anemia.

Autopsy revealed a tumor in the stomach 14 cm. long, 13½ cm. wide, and 6 cm. thick, which extended along the greater curvature, and the serous covering of which was continuous with the serosa of the stomach. On cross-section the growth had a checkered appearance due to extravasation of blood and many hard yellow areas. In certain areas the boundary between the tumor and the muscularis of the stomach wall was distinctly evident and in others obliterated. In one spot on the mucosa was

a small ulcer through which the sound passed into the depths of the softened tumor.

Microscopic examination showed smooth interlacing muscle fasciculi with characteristic nuclei in certain areas, and sarcoma-like polymorphic cells in others. A decided border between the wall of the stomach and the tumor could not be determined. The outer layer of the muscularis passed immediately over into the smooth muscle element of the tumor, becoming astonishingly altered. The growth was diagnosed as a myoma of the stomach with atypical sarcoma-like tissue.

Since the time of Virchow, the myomata of the stomach have been classified as internal and external. In the author's case the myoma developed outward into the abdominal cavity, raising the mucous membrane in the interior of the stomach only slightly. Therefore it must be classified among the external or transition varieties.

According to Steiner's statistics, external myomata are the more common and attain a greater size than internal myomata. The connection between the muscle layer of the wall of the stomach and the muscle elements of the tumor found in the author's case was interesting. Ulceration of the mucous membrane over the tumor has an important clinical bearing as it may cause severe hemorrhage.

The benign myoma may degenerate into a malignant form (Borst and others) described as myosarcoma, myoma sarcomatosum, myoma malignum, etc. The growth described belongs to the mixed forms in which the typical myomatous elements and atypical "sarcomatous" cells are both present. The genetic union of benign and malignant forms in this type of tumor proves that transition from one to the other is possible. The immediate development of the tumor from the muscle layer of the stomach wall is generally recognized (Virchow, Steiner, Tilp, Moser, Boettcher, Anitschkoff) and is demonstrated by the case reported.

The clinical diagnosis of this type of myoma of the stomach is most difficult. Active hemorrhage is not always observed. Changes in the boundary of the palpable tumor may be of importance. A few cases in which surgical treatment of gastric myoma was successful (Herhold, Elach, Moser, Tyority) are on record.

SCHAAK (Z).

Mayo, C. H., and Magoun, J. A. H., Jr.: Postoperative Intra-Abdominal Hernia. *Arch. Surg.*, 1922, iv, 324.

Moynihan called attention to the possibility of a herniation of the small intestine into the lesser peritoneal cavity through an abnormal opening in the transverse mesocolon. Four such cases were reported. It was only when fatalities occurred from such hernia following posterior gastroenterostomy that surgeons began to suture the stomach or jejunum to the transverse mesocolon. At first the opening in the transverse mesocolon was sutured to the stomach or bowel before the anas-

tomosis was made. Today most surgeons make the anastomosis first and then suture the mesocolon.

Another form of internal hernia is herniation of the small intestines through the loop of jejunum formed in both the anterior and posterior types of gastrojejunostomy. Ten such cases have been reported in the literature. The second operation in these cases was done six days after gastrojejunostomy in four cases, eight days later in one, twelve days later in two, fourteen days later in one, one year later in one, and two years later in one. Four patients recovered and four died. The results in two cases were not recorded.

The authors report two cases of internal hernia following gastrojejunostomy and one following colostomy.

Case 1. Anterior gastrojejunostomy for ulcer on the anterior wall of the duodenum. Operation on the ninth day for obstruction due to internal hernia. The patient died.

Case 2. Posterior gastrojejunostomy for perforating ulcer of the duodenum. Operation for internal hernia performed almost one month after the first operation. Recovery.

Case 3. On February 17, 1921, a left rectus colostomy was done, and on February 26 an operation for internal hernia. The patient died.

I. E. BISHKOW, M.D.

Wikle, H. T.: An Aid in the Differential Diagnosis Between Acute Toxic and Acute Mechanical Ileus. *Internat. J. Surg.*, 1922, xxxv, 90.

A definite differential diagnosis between acute toxic ileus and acute mechanical ileus as produced by the postoperative formation of adhesions or by adhesions from other than operative causes is essential for the proper treatment as eserin, pituitrin, etc., are indicated in the toxic type and contra-indicated in the mechanical type, while in the mechanical type operative procedure is demanded.

Nausea and vomiting are two invariable symptoms of all forms of intestinal obstruction when there is complete occlusion of the lumen or paresis of any portion of the intestine. Vomiting has two mechanisms, a mechanical, which is a spasmodic contraction of the respiratory (abdominal) muscles and the inspiratory muscles (diaphragm) and the pyloric end of the stomach, and a nervous mechanism, which is probably controlled by a vomiting center supposedly situated in the medulla. In toxic ileus the vomiting is produced by the stimulation of the vomiting center through the afferent nerve fibers from the mesenteric plexus by the same toxin that has produced the ileus. In mechanical obstruction it is caused by mechanical disturbance of one of the nerve segments of the intestine which is already hypersensitive. Later, in both varieties of ileus, vomiting is caused by the toxins produced by the protein disintegration of the stagnated intestinal contents.

The procedure employed by the author to distinguish between the two types of ileus is as follows:

The stomach is lavaged until the return is clear. Eight to sixteen ounces of fluid are used at each washing. In one case as much as 15 gal. was necessary and the lavage was continued for an hour and a half. After the lavage, when the patient is free from nausea, a compound enema containing an irritant, turpentine, oil of gall, or magnesium sulphate, is given to stimulate the intestine. In mechanical ileus, in which the intestine is hypersensitive particularly around the obstructed area, it produces pain in a localized area followed by an immediate return of the nausea and vomiting. In the toxic ileus, in which paralysis is present and consequently hypomotility, there is little or no response to the stimulation.

The diagnosis and treatment of postoperative ileus should not be delayed more than seventy-two hours.

JOHN D. ELLIS, M.D.

Beccherle, G.: Ileocecalocolic Invagination; Intestinal Resection; Recovery (*Invaginazione ileo-ceco-colica; resezione intestinale; guarigione*). *Paladin*, Rome, 1932, XXIX, ser. chir., 129.

The case reported by the author was that of a youth aged 17 years. The clinical and X-ray diagnosis was incomplete intestinal occlusion due probably to chronic invagination. A median laparotomy disclosed an ileocecalocolic invagination. An intestinal resection and an ileotransversostomy with a Murphy button were done and adhesions liberated. The patient made an excellent recovery.

The portion of intestine removed consisted of a section of the small intestine 7 cm. long (of which about 2 cm. were invaginated), the cecum, and about 10 cm. of the proximal colon. The ileocecalocolic invagination was double.

The case was particularly interesting from the point of view of pathogenesis. In the author's opinion the invagination was rendered possible by the persistence of a mesocecalocolic ascending mesentery. Therefore intestinal resection is the most suitable method of treatment to prevent recurrence.

W. A. BRENNAN.

Bloch, O. E.: Some Appendiceal Vagaries. *Internat. J. Surg.*, 1932, XXIX, 81.

Early operation probably saves lives and prevents the necessity of drainage. When necessary, the author employs a cigarette drain which he leaves in place forty-eight hours. If drainage is slight on its removal, he ties snugly a silkworm gut suture which was placed in position and loosely tied at the time of operation. He advises drainage of an abscess, and the removal of the appendix at a second operation if it is not readily found at the first. The absence of fever should not be regarded as a negative sign when others are conclusive.

Among atypical cases of appendicitis mention is made of:

1. Appendicitis associated with pain in the right testicle and irregular, frequent micturition due to an

extending retrocaecal abscess over the right ureter at the pelvic brim.

2. A retrocaecal appendix with pain simulating that of pneumonia.

3. Advanced appendiceal involvement with slight symptoms and signs.

4. Cases in which the only outstanding signs are vomiting and leucocytosis.

In conclusion Bloch states that no one sign or symptom is always present. External evidence does not reveal the condition of the intra-abdominal organs. Serious lesions may cause only slight symptoms. Neither laboratory nor physical examinations are infallible. An appendix with an abnormal appearance should be removed. Early operation is safer than delay. An acutely inflamed appendix should be removed immediately.

WALTER C. BURKET, M.D.

Hartmann, H.: Inflammatory Strictures of the Rectum. *Lancet*, 1932, ccll, 307.

Of the author's series of eighty-six cases 58 per cent were those of women. Most of the patients were in the fourth or fifth decade of life. Syphilis was undoubtedly present in 34.8 per cent of the cases. Tuberculosis preceded the stricture in 8.6 per cent. Pederasty and gonorrhoeal infections are other causes. Different causes may be associated. Chronic uterine inflammation, dysentery, and leprosy are rare causes. The influence of chronic constipation and hæmorrhoids does not seem to be proven.

Inflammatory strictures occupy a fairly extensive area of the rectum, and the bowel above and below the stenosis is inflamed; in cancer, the wall of the intestine above and below the stricture is not affected.

The stricture lies generally in the lower region, 2 to 6 cm. above the anus. It is usually cylindrical or circular. On its surface there is seldom any ulceration. On section, all the coats are found to be blended into one sclero-œdematous mass, from a few millimeters to 1 to 2 cm. thick. The lesions seem to lie especially in the submucous layer. Below the stricture, the mucosa is inflamed, red, and ulcerated; as a rule the membrane has lost its elasticity and is grayish in color, thicker than normal, strewn with granulations or even small lumps, and papillomatous or molluscous. If the proliferations are extensive the condition is called "proliferative and stenosed proctitis."

The anus presents ulcerations resembling fissures separating the small lumps of a condylomatous clump. In rare cases ulceration may be found above the stricture, as high as 10 cm. or more. It has a well-defined border and a festooned ledge above which the mucosa suddenly assumes a normal aspect.

Very often fistule may be seen about the rectum, beginning as a rule below the stricture. Callous masses and even large sclero-lipomatous perirectal masses are sometimes found.

On microscopic examination one is struck with the fact that there is little ulceration of the mucosa at the level of the stricture. The cylindrical epithelium with tubular glands is changed into a stratified pavement epithelium coated with irregular papillae.

Below the epithelium, when it is not involved, and below a single layer of embryonic cells when the epithelium is ulcerated, the tissue of the stricture is composed of hard, fibrous layers separated by embryonic diffuse strips invading and separating the innermost layers of muscle fibers. Sometimes obliterated vessels, areas of necrosis, tuberculous follicles, or miliary gummata may be found.

The stricture is composed of hard, fibrous tissue, which explains why, even in syphilitics, anti-syphilis remedies have no power to cure or to relieve the stricture. The author cites a case, undoubtedly due to lues, which he was able to follow from the beginning to the end, a period of twelve years.

Before secondary infection takes place anti-syphilis treatment may effect a cure.

The symptoms of proctitis nearly always precede those of stricture. These symptoms are: a feeling of rectal fullness, a frequent desire to defecate, and a painful discharge of muco-pus or pure pus. At this period there is proctitis only. After the stricture has developed, defecation is more difficult and infrequent, cathartics and enemas must be used freely, and a purulent discharge is present. There are two forms of stricture: one with predominate supuration, the other with predominate symptoms of stenosis. The edge of the anus and neighboring parts may present erythematous eruption. Bleeding may also occur. The stools may cause such great pain that the patient is afraid to eat. Again, the stools may be liquid, and there may be true incontinence. The stool may be flat or passed in small ovoid pieces.

As a result of infrequency of defecation there may be abdominal distention and cramps. These disappear after an extensive evacuation. Complete obstruction has been reported. The patient loses weight and strength, and may die from cachexia or an intercurrent disease.

Examination around the anus shows small firm excrescences which sometimes are condylomatous and excoriated on their internal surface. The skin is thick and inflamed. On digital examination just above the anus, rough, dry, uneven thickenings of the mucous membrane will be found. In a few cases a definite ring of constriction may be palpated.

Generally the stricture is at the upper border of the lesions of chronic proctitis and has a funnel-like form, the narrower part being 4 to 6 cm. from the anus. The inflammatory stricture never forms a tumor. In the suppurating type small vegetating lumps sometimes develop.

Proctoscopic examinations reveal red, uneven, cicatricial spots, sometimes with vegetations and small ulcers. Resulting abscesses or fistulae may first call the patient's attention to his condition.

Specific treatment has no effect upon the stricture. Dilatation, the most usual treatment, must be applied gently. The bougie must be passed through without causing pain; the procedure should be repeated every other day, beginning with the largest bougie that had been used the previous day. Each bougie should be left in for a few seconds only. Later, weekly dilatations will be sufficient. This treatment relieves but does not cure the condition. If the proctitis is predominant, dilatation may make the condition worse.

When the disease is limited to the termination of the rectum, complete extirpation of the diseased areas effects a permanent cure.

Fistulae should be incised and curetted. In very severe cases of long standing, ileocolostomy is indicated.

CLAYTON F. ANDREWS, M.D.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Harer, W. B., Hargis, E. H., and Van Meter, V. G.:
Studies of the Function of the Gall-Bladder.
Surg., Gynec. & Obst., 1922, xxxiv, 307.

There is a great diversity of opinion among investigators as to the function of the gall-bladder. The theories vary from the one extreme that the gall-bladder is a vestigial organ like the appendix to the other extreme, the theory advanced by Kemp, that the mucosa of the gall-bladder acts as a catalytic agent which changes the bile so as to make it of considerable importance to the organism. Even the Mayos, who probably draw their conclusions from the same sources, are not in accord on this subject.

In view of the fact that from 900 to 1,200 c.cm. of bile are secreted in twenty-four hours, the theory that the gall-bladder acts as a reservoir must be discarded. Although no apparent ill effects follow its removal, the authors do not believe it is a vestigial organ.

C. H. Mayo has stated that the gall-bladder empties the bile by rhythmic contractions but it has been shown that the pressure varies little from the pressure of bile secretion. The gall-bladder is not a regulator of the flow of bile into the intestine as it has been shown definitely that the muscle of Oddi at the ampulla of Vater has this function. The gall-bladder can play no part to prevent the bile from flowing into the pancreatic duct and pancreas as this does not occur after cholecystectomy.

From a minute study of the nerve, blood, and lymphatic supply of the gall-bladder and experimental work on animals, the conclusions arrived at by the authors are as follows:

1. The function of the gall-bladder is that of a concentrator of bile, the concentration being effected chiefly by the lymphatics.

2. The gall-bladder is emptied of its contents—if it is emptied at all through the cystic duct—by pressure of adjacent, distended, and congested organs during digestion and by the milking action

of the duodenal peristaltic waves. The rhythmic contractions of the gall-bladder are of no importance in this respect.

By means of the lymphatics, infections are carried to the glands at the head of the pancreas, producing a lymphangitis, a lymphadenitis, and a lymph stasis which later becomes organized and results in chronic pancreatitis.

L. E. BISHKOW, M.D.

Gibson, T. C.: Non-Surgical Drainage of the Gall-Bladder. *Northwest Med.*, 1922, vii, 79.

The author describes the technique of non-surgical gall-bladder drainage as follows:

Omit breakfast. Place the patient in a sitting or recumbent position. Clean the mouth with a potassium permanganate solution or $\frac{1}{4}$ of 1 per cent formalin solution and a tooth brush. Insert a sterilized duodenal tube to the stomach. Aspirate and examine the gastric contents. Wash the stomach until the returned fluid is clear, then lavage first with a 1:10,000 potassium permanganate solution or an astringent zinc-chloride solution and then with sterile water. Leave a small quantity of water in the stomach. If pyloric stenosis is suspected, a hypodermic injection of atropine may help. Slowly advance the tube 15 to 20 cm., $2\frac{1}{2}$ cm. at a time. The tip passes the pylorus in fifteen to twenty minutes. Determine whether the tube is in the duodenum by gentle traction or by aspirating and examining the aspirated fluid (this is alkaline and may contain bile).

Wash the duodenum as often as necessary by the repeated injection and immediate removal of 30 to 40 c.cm. of the solution. Inject 50 c.cm. of a 33 per cent magnesium sulphate solution into the duodenum to relax the sphincter of Oddi and to excite the flow of bile. Attach the duodenal tube to the vacuum bottle with a glass cannula to serve as a window and begin to recover the magnesium sulphate solution. Use a new bottle for each liquid of a different color. The first "A" bile, which appears within a few minutes, comes from the common duct; the darker yellow or greenish-colored "B" bile with increased viscosity, from the gall-bladder; and the light golden yellow and less viscid "C" bile, from the hepatic duct. After drainage, lavage the duodenum with 400 to 750 c.cm. of some antiseptic solution (Ringer's solution will do). Toilet facilities should be convenient as the bowels may move during the drainage.

In common-duct infection, "A" bile will be darker and thicker, and will contain the infecting organisms and perhaps pus and epithelial cells. In gall-bladder infection the "B" bile will be darker (occasionally almost black), and thicker and will contain bacteria. "C" bile will be changed in disease of the hepatic ducts and cholangitis. Failure to obtain "A" bile is due to faulty technique or common-duct obstruction. If "A" and "C" bile are obtained but no "B" bile, there may be cystic-duct obstruction. The amount, color, viscosity,

turbidity, bacteriological, and microscopic findings should be studied.

In obscure cases of probable focal infection the biliary tract should be investigated by means of gall-bladder drainage.

The author concludes that as a diagnostic measure the non-surgical drainage of the gall-bladder is of great value when used in conjunction with the clinical history and physical findings, but should not be depended upon alone. As a therapeutic method it is of value in all conditions associated with biliary stasis, the early stages of cholangitis and cholecystitis, but of little use in cholelithiasis and chronic cholecystitis with thickening of the gall-bladder walls.

WALTER C. BEECHER, M.D.

McEachern, J. D.: Hepaticoduodenostomy for Injury of the Bile Ducts During Cholecyst-enterostomy. *Ann. Surg.*, 1922, lxxv, 344.

Injury of the common and hepatic ducts is usually the result of operative accidents. In only a small percentage of the cases will the accident be recognized at operation; the great majority are manifested several weeks or months later by a permanent biliary fistula or by jaundice or some other sign of obstruction. These injuries to the bile ducts are due mainly to the failure of the operator to identify the cystic duct because of poor exposure of the operative field.

Three clinical types of cases due to operative injury during cholecystectomy are:

1. The case of biliary fistula with clay-colored stools, the condition being present continuously since the operation.

2. The case in which the patient becomes deeply jaundiced immediately after the operation and there is little or no discharge of bile in the stools or on the dressings. Later a biliary fistula usually develops.

3. Cases which improve quite well after the operation except that the drainage of bile is greater than usual. All goes well until several weeks or months after the fistula closes, when the patient develops jaundice, slight at first and intermittent, but later tending to become deeper and more permanent.

The injury may be a stricture due to crushing or ligation, or there may be division or resection of a portion of the duct.

The subject of operative injuries to the bile passages and the methods of repair has been well presented in very excellent articles by Mayo, Jacobson, Sullivan, Walton, Elliot, and others. The operation of choice is an end-to-end anastomosis over a rubber tube, the union being reinforced with omentum. At times it is well to implant the stump of the hepatic duct directly into the duodenum. Hepaticoduodenostomy carries with it the possibility of regurgitation of bile into the bile ducts and ascending infection of the bile passages and liver. When the stump of the hepatic duct is a little longer than 1 cm., the "physiological implantation" of

Gilley is impractical, and an attempt to carry out the principle by passing a rubber tube obliquely through the duodenal wall is of doubtful value. After direct implantation of the hepatic duct into the duodenum a patient operated upon by Mayo remained well after fifteen years, but duodenal fistula with peritonitis from leakage of the intestinal contents or death from starvation may follow the procedure.

When the patient's condition is serious it is advisable to perform the operation in two stages, the duct above the obstruction being drained in the first stage, and the re-establishment of the flow of bile from the liver to the intestine being undertaken later when the jaundice has disappeared and the patient's condition has otherwise improved.

E. K. LANGFORD, M.D.

Richter, H. M.: Closure of the Abdomen Without Drainage After Cholecystectomy and Choledochotomy. *Surg., Gynec. & Obst.*, 1922, xxxiv, 180.

In the opinion of the author, closure of the abdomen without drainage has a wider application than gall-bladder surgery. In cases in which it has been possible to remove the source of the infection in a case of peritonitis not too far advanced, he has closed the abdomen without drainage. These include cases of acute appendicitis with free peritonitis in adults and children, perforated gastric and duodenal ulcer, and certain cases of well-defined abscess. In the cases of appendicitis, which include fifty cases in children under 13 years of age, there have been no deaths. In twenty cases of perforated gastric and duodenal ulcer operated upon consecutively, one moribund patient died six hours after the operation and one died five weeks later from subphrenic abscess.

In cholecystectomy the author uses very fine catgut to suture the cystic duct. The maximum bile tension is less than the arterial tension of a small artery. Heavy ligature material acts as a foreign body. No further treatment of the cystic duct is attempted after ligation. The raw surface of the liver left by the removal of the gall-bladder is permitted to drop together; no sutures are used. Peritonization forms a dead space for the accumulation of blood and bile. Bile leakage is negligible except when drainage has been used. Opening of the cystic duct occurs only when drainage is employed. Drainage prevents primary union.

The omission of drainage lessens postoperative discomfort. Hernia does not occur and the average stay in bed is five days.

In persistent oozing from the liver surface and in the presence of jaundice, gauze packing is necessary. Drainage may be necessary in unusually active infection or suppuration outside the gall-bladder.

When the common duct can be sutured and closed without drainage, the advantages are the same as in cholecystectomy. There must be a good peritoneal coat, the surgeon must be sure that no

stones are left, the diameter of the duct must allow for swelling of the walls, and the suture material and needles must be fine.

The abdomen should not be closed in the presence of jaundice or infection.

In nineteen cases treated by Richter there were two deaths. Both of the patients who died were jaundiced. In one of these cases the operative work was very extensive. The second patient had pernicious vomiting which persisted for several weeks before the operation and continued afterward until death. Both cases required transduodenal opening of the ampulla to release impacted stones.

In 100 cholecystectomies there were two deaths. One was that of a patient with cirrhosis of the liver and nephritis and the second was due to a frank pneumonia.

I. E. BISHKOW, M.D.

Jones, D. F.: Acute Pancreatitis. *Boston M. & S. J.*, 1922, cxxxvi, 337.

Experimental and clinical findings lead the author to conclude that there are two types of acute pancreatitis of quite different etiology.

1. Interstitial pancreatitis due to infection of the interstitial tissue, the infection coming frequently from the biliary system. This is Mauder's theory, but there is no experimental proof that acute hæmorrhagic necrosis can be caused by infection through the lymphatics. So far as we can learn, the pancreatitis associated with infections of the biliary system is, as stated by Opie, an inflammatory change in the interstitial tissue of the gland. On the other hand, the condition found in the pancreas in acute pancreatic necrosis is primarily a necrosis of the parenchymal cells, and in certain cases at least the necrosis is localized along the involved pancreatic duct.

2. Pancreatic necrosis, a necrosis of the parenchymal cells due to retrojection of bile into the duct of Wirsung or of the duodenal contents into the duct of Santorini. This theory is supported by Archibald and Brocq and by experimental evidence.

The treatment of the interstitial type due to infection from a cholecystitis is cholecystostomy.

The treatment of pancreatic necrosis is drainage of the fatty capsule of the pancreas and the pancreas itself. In addition, the sphincter of Oddi may be cut or a choledochostomy may be done, depending upon the condition of the patient and that of the gall-bladder and ducts found at operation.

H. A. MCKNIGHT, M.D.

Mayo, W. J.: The Relation of Splenic Syndromes to the Pathology of the Blood. *Illinois M. J.*, 1922, xli, 175.

The most interesting of the splenic syndromes are those concerning the blood, which may be regarded as an organ in the form of fluid rather than as a connective-tissue medium. The function of the blood is to carry oxygen and food to the tissues of the body, to remove the ash and waste products,

and to transport noxious agents of all sorts to the kidneys, mucous membranes, and skin for elimination, or to the vital laboratories, of which the liver is the chief, for defense. The spleen is concerned with the purification of the blood and is one of the agents whereby worn-out erythrocytes and various infectious or toxic materials are filtered from the blood stream and directed to the liver, the great metabolic and detoxicating organ of the body. It would appear that the spleen is not the principal agent, but rather an organ of destruction through which the principal agent works. Even when splenectomy results in alleviation of the symptoms or in cure, it is by no means proved that the spleen was the cause of the ailment.

The spleen plays a very important part in the five syndromes of splenic anemia, pernicious anemia, hemolytic jaundice, and polycythemia, which concern the erythrocytes, and in splenomyelogenous leukemia, which concerns the leucocytes.

Splenic anemia. Splenic anemia is a clinical entity, the chief characteristics of which are idiopathic enlargement of the spleen and chronic, progressive, and intercurrent anemia with leucopenia. These are the antecedents of phenomena related to obstruction of the portal circulation, such as gastro-intestinal hemorrhage and ascites, which eventually cause death.

Since the publication of Osler's article in 1900, hemolytic icterus, the splenomegaly of Gaucher's disease, syphilis, chronic malaria, chronic sepsis, and tuberculosis have been removed from their former classification in groups of splenic anemias. Von Jaksch's disease is probably a syndrome caused by various infantile disorders.

The chief pathologic conditions in splenic anemia are generalized fibrosis, thrombophlebitis, and atrophy of the pulp cells. The deposits of connective tissue, endophlebitis, and compression atrophy of the malpighian corpuscles are not grossly different from those due to splenomegaly in syphilis, malaria, and other diseases of known origin associated with fibrotic spleens. A patient with chronic, fibrotic splenomegaly who presents the characteristics of chronic secondary anemia but is not relieved by medical treatment is potentially a sufferer from splenic anemia and will probably be cured by splenectomy without regard to the cause of the disease. It seems probable that certain as yet unidentified toxic agents strained out of the blood by the spleen are responsible for splenic fibrosis and these in turn are responsible for cirrhosis of the liver.

It is known that the spleen acts as a filter removing bacteria from the blood stream. Unable to destroy these substances, it sends them through the splenic vein to the liver; the reaction of the liver to chronic irritants may result in portal cirrhosis. If the spleen is unable to rid itself of all the material it filters from the blood stream, sequestration of the filtrates may occur and give rise to the various

splenomegalies of known etiology and to others the etiology of which is as yet unknown.

The type of splenic anemia accompanied by portal cirrhosis of the liver and called Banti's disease is a condition in which the fibrosis of the spleen and the liver is due to the same agent. When the disease is not too far advanced, removal of the spleen cures the anemia by stopping the excessive destruction of blood and preventing toxic substances from reaching the liver so that the cirrhotic process is checked and the ascites disappears.

Seventy-four patients with splenic anemia of unknown origin have been operated on in the Mayo Clinic with nine deaths.

Pernicious anemia. The etiology of pernicious anemia is unknown. The early symptoms are indefinite, and by the time a diagnosis can be made the disease is usually incurable. The size of the spleen does not seem to bear a definite relationship to the severity of the condition. At autopsy the spleen is usually found to be small, and in the cases treated in the Mayo Clinic the average weight of the spleens removed at operation was 400 gm. It seems probable, therefore, that in this disease the spleen is enlarged during the early and middle stages and that the contraction so often found at autopsy is a terminal condition. It is not known whether pernicious anemia is a definite and specific entity or a terminal phase of several conditions recognized as pernicious anemia only when the patient has reached a stage which will eventually result in death.

Because of the confusion which so often attends the diagnosis of this disease the impression is gained that splenectomy may cure it. In fifty-four cases of splenectomy for pernicious anemia performed at the Mayo Clinic, decided, although usually temporary, improvement was noted. These patients have lived an average of two and one-half times as long as a comparable group of non-splenectomized patients. Some of the patients treated by splenectomy for pernicious anemia are alive and able to work more than five years following the operation but the blood is still more or less characteristic of the condition. When pernicious anemia has developed to the stage in which the blood is characteristic it is probably incurable and terminal splenectomy is to be regarded as a means of palliation rather than of cure. In selected cases early splenectomy may have great possibilities.

Hemolytic icterus. The peculiar splenic activity in hemolytic icterus results in an anemia which is the cause of death. The etiology of the disease is unknown. The characteristic features are an enlarged spleen, chronic jaundice with exacerbations, normal bile-colored stools, and an absence of bile in the urine. It is certain that in hemolytic icterus the spleen unnecessarily destroys the erythrocytes and the splenic enlargement may be in the nature of a work hypertrophy.

There are two types of hemolytic icterus: the familial or congenital type, and the acquired. The

author's experience confirms the observations of Chauffard and Vidal who pointed out that the erythrocytes are less resistant in hæmolytic icterus than normally.

Thirty-seven splenectomies were performed in the Mayo Clinic on patients with hæmolytic icterus, with one death.

Polycythæmia. Polycythæmia is a condition of the blood in which the number of erythrocytes is decidedly in excess of the normal. This is constant and not due to temporary dehydration. The erythrocytes may vary from 8,000,000 to 12,000,000 and the hæmoglobin may rise to 130.

The pathologic condition in this disease is obscure, but the characteristic feature is enlargement of the spleen. If it is assumed that the spleen not only destroys abnormal erythrocytes, but also, to a considerable extent, controls their production in the bone marrow through some internal secretion, it is possible to explain the phenomenon of polycythæmia on the hypothesis that the spleen failed to destroy the normal number of erythrocytes and has thus produced hyperactivity of the bone marrow.

A few patients with polycythæmia have been observed in the Mayo Clinic. The spleen of one who was splenectomized weighed 900 gm. A section from the liver did not show disease. The patient regained his health to a remarkable degree and all signs of the condition have disappeared, but the

period since operation has been too short to permit a conclusion with regard to the permanency of the cure.

Leukæmia. Splenomyelogenous leukæmia was one condition believed to be non-surgical and incurable. The use of radium over the splenic area, however, made a decided change in its treatment. Frequently under radium treatment the spleen disappears below the costal margin and the leucocytes decrease from hundreds of thousands to less than 10,000. As the spleen again increases in size, the leucocytes increase, the erythrocytes decrease, and the symptoms return.

It is possible that we recognize leukæmia as a disease only after it has reached the hopeless stage. In one case in which splenectomy was done for splenomyelogenous leukæmia previous roentgen-ray treatment failed to have any beneficial effect and the patient rapidly became worse. Within ten days after the operation, however, the leucocytes had dropped to less than 40,000 and the patient was greatly improved. She lived in good health for more than two years.

Twenty-nine patients with splenomyelogenous leukæmia have since been splenectomized, with one operative death. Seven are known to be alive and in good health more than three years after the operation; four, more than four years; and one, more than five years.

W. C. CHANEY, M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Faldino, G.: Research upon the Development of the Joints (*Ricerche sullo sviluppo delle articolazioni*). *Chir. d. organi di movimento*, 1921, v, 609.

Faldino's studies were made on twenty human embryos ranging in length from 9 mm. to full-term fetuses which were obtained from the Royal Hospital of Livorno. From this investigation the following conclusions are drawn:

1. The joints develop from the mesenchymal tissue which constitutes the first differentiation of the limbs. The cartilages of the limbs are differentiated at a very early stage (in an embryo of 12 mm.) and are always distinct from undifferentiated tissue.

2. The tissue forming the intermediate disc is outlined from the surrounding tissue by a connective lamina which very early becomes differentiated from the primary blastema (observed in an embryo of 18 mm.).

3. The external and internal ligaments of certain articulations are differentiated successively after the articular capsule at the expense of the intermediate disc (observed in an embryo of 23 mm.). The round ligament in the coxofemoral joints seems to have its origin, outside of the primary acetabular

cavity, from the tissue surrounding the acetabular ridge (observed in embryos measuring 25 to 35 mm.).

4. The period of differentiation is not the same for all joints; neither is the differentiation simultaneous in the proximal and distal segments. Joints which are normally flexed by the usual posture of the fœtus are the first to be differentiated.

5. The differentiation of each joint is always preceded by differentiation of the muscle group which governs its mechanical action.

6. The formation of the articular cavity is almost contemporaneous with the differentiation of the single articulations, and is earlier for those articulations which are differentiated first. In the formation of these cavities certain arrests of development are observed. These are manifested by adhesions between the joint components which disappear only at a very advanced period of embryonic life (in embryos 110 to 125 mm. in length). This fact is in accordance with the development of the muscular system since resolution of adhesions occurs only when movement of the articulation can be completed by the definite differentiation of all the groups and of the tendons which bring motor energy to that particular skeletal segment.

7. The formation of the articular cavity occurs by differentiation of the embryonic connective tissue

and by mechanical displacement without degenerative liquefactive phenomena in the cells of the intermediate disc.

8. At the beginning of its formation the articular cavity is single in some articulations but in others is divided into sections by septa. These divisions are reduced and in part disappear so that when complete development has been reached there is only one cavity.

9. By successive differentiation some of the free portions of the intermediate disc and of the septa which primarily divide the articular cavity give rise to the formation of synovial villi. There is very early penetration of vessels and in some joints these are particularly abundant (in the knee of the embryo measuring 41 mm.).

10. The cellular layer which covers the internal layer of the capsule and articular heads is a differentiation of the connective tissue which, following mechanical action, assumes the form and disposition mentioned.

11. The development of the articulations in general must be considered as due to phylogenetic phenomena in the very early stages of differentiation. In the successive stages it is due to mechanical phenomena and the function of the intimately connected muscular apparatus. W. A. BRENNAN.

Mandl, F., and Palugyay, J.: The Bone Deformities of Football Players (Ueber die Beindefor-mitäten der Fussballspieler). *Deutsche Ztschr. f. Chir.*, 1921, clxvii, 370.

Examination of fifty football players between the ages of 17 and 30 years led the authors to the conclusion that football causes bow-legs. In 68 per cent there was a varus deformity, which the players claimed developed while they were playing. In addition, two players, who undoubtedly had recovered from rickets, showed genu varum and four had genu valgum. Ten were normal.

The severity of the deformity bears no relation to the early practice of the sport. Both legs may be affected or only one. The tacklers were affected most frequently. The use of the external border of the foot seems to produce varus lesions due to the hypertrophy of the lateral muscles. In a group of players who used the inner border of the foot the bow-leg was counterbalanced by hypertrophy of the medial muscles. TROMP (Z).

Beck, H.: Regeneration in Osseous Panaris (Regeneration bei Knochenparastitien). *Arch. f. Klin. Chir.*, 1921, cxviii, 745.

Beck differentiates three varieties of bone sequestra: (1) cortical sequestra of the head of the phalanx; (2) those causing loss of the entire phalanx due to extensive subcutaneous necrosis leading to invasion of the articular cartilage by pus and destruction of the joint; (3) sequestra in which the roentgen picture shows early beginning degenerative processes near the joint, the cortex of the phalanx has a gnawed appearance, and circular light spots

are visible within the phalanx. These resorptive processes soon separate the greater part of the phalanx from a narrow zone which, in the roentgen picture, appears only as a border a few millimeters wide. In a child's bone this narrow zone is situated at the epiphyseal line, while in an adult's bone it is close to the insertion of the articular cartilage. The separation is due to the fact that the blood supply which is common for the shaft and head is distinct from that of the base.

The defects arising from cortical sequestra are usually small and of little or no consequence as regards function. They have very slight tendency to regenerate in the old, typical form. If the phalanx has been cast off as a whole, there is no regeneration. In the last group, on the contrary, a new formation proceeds from the remnant of phalanx retained and, given favorable conditions of healing, will in a short time restore the old anatomical form. The reason for this is that not only the periosteum (as in Types 1 and 2), but also the marrow has been partially conserved and the marrow cavity opened. In panaris of the bone, therefore, there is regeneration of the phalanx only if periosteum and marrow are conserved. If none of the marrow remains or if the bone-marrow cavity is not open, regeneration is incomplete or lacking entirely. When regeneration does not take place after primary amputation of the phalanx in spite of conserved periosteum and opened marrow cavity, the reason apparently lies in the absence of inflammatory stimulation. The most frequent cause of merely defective regeneration is suppuration proceeding from the bone, and on this we can exert no decisive influence. GUERBEL (Z).

Satta, F.: Septic Gangrenous Osteomyelitis Due to Bacillus Coli (*Osteomyelitis patialis gangrenosa da bacterium coli*). *Chir. d. organi di movimento*, 1922, vi, 103.

Many different infections have been ascribed to the bacillus coli as this organism seems to assume diverse biological and pathogenic properties according to the area in which it grows.

It is a difficult matter to affirm that the bacillus coli is included in the group of micro-organisms causing the lesions of osteomyelitis and bone suppurations in general. In 320 cases of osteomyelitis reviewed by Klemm the bacteria in 280 in which positive cultures were obtained were as follows: staphylococcus, 203 cases; streptococcus, 48 cases; pneumococcus, 16 cases; strepto-pneumo-staphylococci, 10 cases; bacillus coli, 1 case; and bacillus typhosus, 1 case.

In a case of acute and apparently primary osteomyelitis described by Satta the pathogenic agent isolated in pure culture belonged to the group of common bacillus coli. The acute, septic, gangrenous osteomyelitis in this case was analogous to that caused by anaerobic bacteria. These anaerobic suppurations of bone are well known but a septic osteomyelitis due to aerobic organisms has never been reported previously. The author's case is

therefore of unusual interest. The condition developed in an old war injury and may have been the relighting of an old latent infection. Satta failed to find any other focus of infection in the body.

W. A. BRENNAN.

Schulze, F.: The Nature of the Disease Picture of the "Albers-Schoenberg Marble Bones" (Das Wesen des Krankheitsbildes der "Marmorknochen Albers-Schoenberg"). *Arch. f. klin. Chir.*, 1921, *xxviii*, 411.

To the six cases of this rare disease previously reported in the literature the author adds a case of his own. The patient was an 11-year-old boy who, since an attack of scarlet fever six years ago, had experienced gradually increasing stiffness of the spine, increasing pains and heaviness in the limbs, and progressive emaciation. His general condition was extremely poor, his weight 52 lbs.

The spine showed a right scoliosis in the upper thoracic region and was stiff in all its segments. No abnormalities of the long bones were noted. Various X-ray pictures showed calcification of the patellar ligaments, the insertions of the Achilles tendons, the hip and knee joints, the posterior longitudinal ligament of the spine, the plantar ligaments, and of the vessels throughout the extremities. With the exception of the metaphyseal region, there was no delineation of the cortex or marrow in any of the long bones. The X-ray shadows cast by the bones were of remarkable density. This change was particularly apparent in the short bones, such as the vertebrae and the bones of the foot. In these also there was no delineation of structure whatever. In the metaphyses of the long bones, on the contrary, the cortex was represented by a very narrow line. Toward the diaphysis the shadow of the bone was very dense; toward the epiphysis an irregular epiphyseal line separated the light metaphyseal zone from the epiphysis which also cast a heavy shadow. The pelvic bones revealed similar changes in the X-ray picture. It was not possible to obtain pictures of the skull. The femur, fibula, tibia, and forearm were rotated on their axes. The head of the humerus showed club-shaped thickening.

The condensation process in the bones, which was everywhere recognizable, was the most prominent characteristic, as in the other cases reported in the literature. In the regions which had remained light, the general process of condensation was probably incomplete. The degree of condensation is dependent on the age of the bone in that the involvement of newly formed bone is gradual and the entire process of the bony change therefore extends over years.

The author's patient died suddenly. Autopsy confirmed the X-ray findings. When the bones were sawed across it was found that they had been converted into a firm, whitish-gray bony substance without a trace of marrow space visible macroscopically and without a suggestion of demarcation of the cortex. The density of the bone was consider-

ably increased by the deposition of free masses of calcium in the narrow marrow spaces. The centers of ossification of the epiphyses were also calcified. The entire skeleton, including the skull, was involved in the bony changes. In the parts near the epiphysis the process was still in the early stages (contrary to earlier observations).

The microscopic findings proved that the condition here found resembled rickets. Otherwise, the microscopic picture, aside from the much increased calcium content, was that of an extremely indolent process of new bone formation with almost complete failure of bony decomposition.

The demonstrated changes allow of no definite interpretation in the sense of a distinct systemic disease of the skeleton. On the basis of the characteristic irregularity of the zone of cartilaginous growth and the completed bony changes in the vicinity the author assumes a primary rachitic osteomalacic disease of the bones. This he believes then came to a standstill or was overlaid by a process of a different nature. He is led to this assumption by the very extensive calcification in the most remote parts of the body as well as by the abundance of calcium in the bones.

Besides the calcification in ligaments and vessels disclosed by the X-ray, the autopsy showed a high calcium content of all the internal structures. All the peripheral branches of the aorta and all the arteries of the organs, with the exception of the thoracic aorta, the two carotid arteries, and the vessels of the brain, were transformed into rigid pipes of calcium. In addition there were large areas of calcification in the posterior wall of the trachea, deposits of calcium in the mucous membrane of the stomach, and calcium infarcts in the kidneys. During life the calcium content of the blood was raised to twice the normal, while examination of the urine showed that only the normal amount was excreted.

In conclusion Schulze states that the condensation of the bones was due to the increased calcium content of the blood and is explained by the cessation of bony decomposition in association with slow and indolent new bone formation. The original disease picture was thus overlaid by the manifestations of a severe disturbance of calcium metabolism which obscured many characteristic signs of the basic disease and permitted others to appear in their place. The origin of the disturbance of calcium metabolism lies in the indolent new bone formation which led to an increase of the calcium content of the blood.

STAHL (Z).

Meyerding, H. W.: Sarcoma of the Long Bones; A Study of Microscopically Proved Cases. *Surg., Gynec. & Obst.*, 1922, *xxxiv*, 321.

The successful treatment of sarcoma of the long bones depends on the early recognition of the growth and the prevention of metastasis. Metastasis to the lungs is the usual complication. With improvement in the methods of diagnosis and radical surgery, an increasing percentage of five-year cures

of carcinoma are being reported, but the treatment in cases of sarcoma remains most discouraging. From September, 1907, to September, 1921, 450 cases of sarcoma of the extremities were observed in the Mayo Clinic. One hundred and nine of the 165 patients with involvement of the long bones were operated on. Microscopic examination showed sarcoma of the femur in forty-nine, of the tibia in twenty-seven, of the fibula in nine, of the humerus in eighteen, of the radius in three, and of the ulna in three. Sixty-nine of the patients were males and forty were females. The average age was 39 years; the oldest patient was a man of 69, the youngest a girl of 4.

In 55.2 per cent of cases the patients gave a history of injury. The importance of trauma is seen also in the age incidence and the location of the tumor on the parts most exposed to injury. Seventy-five per cent of the sarcomata occurred between the ages of 10 and 40 years and 78 per cent were in the region of the knee. The author found that the type of trauma most often followed by sarcoma is a single, severe local injury.

An accompanying chart shows the relation of trauma to the type of cellular growth found in the tumors. Seventy-one and forty-two hundredths per cent of patients with round-cell sarcoma gave a positive history of trauma, and 55.76 per cent of those with mixed-cell sarcoma had had a previous injury. Another chart, which gives the relationship of age and cellular growth, shows the average age of patients with mixed-cell and round-cell sarcoma, osteosarcoma, and chondrosarcoma to be between 25 and 27 years. The average age of those with fibrosarcoma was 38 years.

The most constant symptom was mild boring pain, noted in fifty-five cases, and especially prominent in the cases of the central or myelogenous type of tumor. Severe pain was caused more frequently by the periosteal or perforating central sarcomata. Local swelling and tenderness may persist from the time of the injury, or the swelling may subside to be followed by a slowly or rapidly growing tumor. The superficial veins were often enlarged. If injury occurred near a joint, synovitis might suggest tuberculosis but the joint motion is usually unimpaired and the pain is not relieved by fixation. Muscular atrophy does not appear early and the patient may remain active even when the tumor is very large. Marked leucocytosis is rare. There may be local heat and some fever, and in the late stages, loss of weight, pallor, and secondary anemia. A persistent cough suggests metastasis to the lungs. The lymph glands usually are not involved.

The tumors are fixed and usually firm, and have a gradually sloping edge. Occasionally crepitis may be elicited on pressure. The central lesions are not palpable early, but the periosteal type involves the soft tissues and is soon obvious.

The roentgen ray is of value in determining the location, the size, and to a certain extent, the

structure of the tumor. The periosteal sarcoma, with its radiating fine lines of calcium salts, is the most typical. A positive diagnosis should be made only by applying a tourniquet and removing a specimen for microscopic study. The roentgenogram can locate metastasis to the lungs long before there are demonstrable physical signs.

The surgical indications are destruction of the growth with the cautery, excision, excision and cauterization, or amputation. Such treatment should be followed by treatment with radium, the roentgen ray, and toxins. Amputation was performed in sixty-six of the 100 cases, excision and cauterization were done in nineteen, and local operations of various kinds in twenty-four. The advantages gained by an extensive operation do not overbalance the increase in operative mortality. An amputation, however, even in a hopeless case is preferable to the presence of an ulcerating foul tumor.

Eighteen of the patients were alive at the end of five years. One patient lived more than four years, six more than three years, nine more than two years, and seventeen more than one year. Forty-nine died within the first year.

Thirty-two of the fifty-five patients who died had amputations; their average duration of life was twenty-one and nine-tenths months. Ten deaths were those of patients who had local excision. The average length of life was thirty-four and eight-tenths months. The osteosarcomata were the most malignant tumors of the series; eight patients with this type of growth lived on an average only nine and five-tenths months after the onset of symptoms.

J. I. MITCHELL, M.D.

Migliniac, G., and Cadenat, E.: Late Hereditary Syphilitic Osteo-Arthropathy of the Shoulder (Contribution à l'étude de l'ostéo-arthropathie syphilitique héréditaire, tardive, de l'épaule). *Rev. d'orthop.*, 1922, XXIX, 105.

Although syphilitic lesions of other bones and joints, especially of the knee and elbow, are fairly frequent, osteo-arthro-myopathies of the shoulder attributable to syphilis seem to be very rare, possibly because they are infrequently diagnosed.

A case observed by the author was that of a boy of 13 years who had a tumor on the upper extremity of the humerus which had been diagnosed on the basis of the clinical findings as a sarcoma. Roentgenograms, however, ruled out osteosarcoma, tuberculosis, and osteomyelitis. Syphilis was indicated by the teeth and a positive blood and spinal fluid Wassermann reaction. The child's mother also had a positive Wassermann test. A diagnosis of hereditary syphilitic osteo-arthritis was therefore made. Anti-syphilitic treatment caused an immediate decrease in the tumor and finally its complete disappearance, but the shoulder joint remained in poor condition.

The authors have been able to find only eight cases of scapulo-humeral syphilis reported in the

literature. They give brief histories of these and summarize their conclusions as follows:

1. Suppuration, fungosities, and gaping fistulae are never observed. There may be a gummy ulceration, but no prolonged exudation of pus.

2. Adenopathies may be present in these cases.

3. Any bone deformities shown by the X-ray are never so advanced or marked as might be supposed from the clinical findings. The bone is little altered even when the shoulder is greatly swollen. The roentgenogram is usually negative and disproves a diagnosis of sarcoma. Osteomyelitis is ruled out by the absence of its sudden and violent onset with fever. The irreducible contractions of tuberculous arthritis are not found.

4. There are no definite painful points over the head of the humerus.

5. There is pathologic forward luxation of the shoulder.

Surgical treatment in such cases is not only useless but harmful.

W. A. BRENNAN.

Selkin, S. P.: Diseases of the Costal Cartilages Following Relapsing Fever (Ueber die Erkrankungen der Rippenknorpel nach Rückfallfieber). *Verhandl. d. aerztl. Ges. Saratoff*, 1921.

The author has collected the material for the University Clinics in Saratoff and reports a series of cases of perichondritis of the costal cartilages following relapsing fever. Both very light cases with only pain and swelling, and severe cases, with total necrosis of all the costal cartilages, are found in the series. In some instances the sternum had lost all connection with the chest wall and had sunk back in its entirety into the thoracic cavity.

In the literature the author has found no reports save those of Ponfick who examined the bone marrow after death from relapsing fever and found "white lines," visible to the naked eye, which proved to be foci of softening. Selkin holds the opinion that recurrent perichondritis is a secondary, apparently septic, disease which has no direct connection with relapsing fever. The condition presents the picture of necrosis of cartilage ending in softening. This view does not contradict the theory of Kocher and Tawel, that necrosis of cartilage is a staphylococcal, nor is it opposed to that of Sehtschegoleff and Rydiger that primary necrosis of ribs and cartilage is extremely rare.

In the fluid obtained by puncture of the costal cartilage Selkin found staphylococci and bacillus tetragenes in small numbers. In earlier years relapsing fever was not infrequent in Russia, but secondary "septic" processes were never seen. At the present time necrosis of the costal cartilages is a most common complication. Dirt, the crowding of families into small, often unheated rooms, and the impossibility of carrying out an efficient delousing process have favored the development of the condition. In addition, the resistance of the Russian people has been decreased by undernutrition. Disease of the costal cartilage after relapsing fever is due apparently to

poor vascular conditions which favor the penetration and spread of infecting organisms entering secondarily.

HEISE (Z).

Yvernault: A Case of Juvenile Deforming Arthritis of the Hip (Sur un cas d'arthrite déformante juvénile de la hanche). *Rev. d'arthop.*, 1922, **xxix**, 159.

The case reported was that of a man of 21 years who, at the age of 7, injured his right knee in a fall. The knee was immobilized for two months and cured. There had never been any disturbance of hip function. During military service the knee again caused trouble. Examination showed signs of right coxa vara with shortening of 2 cm. and an equal amount of upward displacement of the great trochanter, considerable limitation of abduction of the hip, and some laxity of the hip joint. There was no functional trouble in the knee joint. The X-ray showed considerable flattening of the head of the right femur, especially in the transverse diameter, and that it was much lower than the top of the great trochanter. The acetabulum was similarly deformed, being molded to the shape of the head of the femur. The neck was shortened to such an extent that the base of the femoral head was almost on a level with the inter-trochanteric line. The same condition, though much less marked, was found also in the left hip. The bilaterality of the lesions and the fact that they developed without causing any particular trouble suggest that they were of congenital origin.

W. A. BRENNAN.

Platt, H.: Pseudo-Coxalgia: A Clinical and Radiographic Study. *Brit. J. Surg.*, 1922, **ix**, 366.

The author briefly reviews the subject of pseudo-coxalgia and its differentiation from other hip joint affections made possible chiefly by the work of Legg, Hoffa, Calve, and Perthes. His own contribution to the subject is a study of the clinical history and roentgenographic records of thirty-five cases of the condition which he observed among 300 cases of hip joint disease. On the basis of these cases he draws attention to the importance of limp, pain, pyrexia, diminished mobility, muscular spasm, the position and alterations of the trochanter, shortening of the limb, and muscular atrophy. With regard to the X-ray picture he emphasizes the changes in the femoral head: (1) flattening; (2) flattening with fragmentation; (3) flattening with fusion changes in the disorganized nucleus; and (4) the presence of the expanded, flattened head outside of the acetabular cavity. Changes are noted also in the contour and internal structure of the femoral neck and the acetabulum.

The incidence of the condition is the same in both sexes. It develops most frequently in the second half of the first decade.

Among the causative factors Platt considers briefly the different agents which have been suggested, viz., trauma, rickets, congenital abnormalities of ossification, syphilis, infections, and varia-

time in the activity of the endocrine glands. His own view is that the condition is an inflammatory lesion of the upper end of the femur in which the changes are subchondral and due to definite infection of low-grade virulence conveyed by the blood stream.

As regards treatment he advises immobilization with protection from weight-bearing for about six months. While this will not interrupt the usual cycle of the disease it renders the final deformity of the femoral head less marked than in the average untreated case. Platt is opposed to surgical treatment.

Throughout the article much stress is laid on the fact that the cycle of roentgenographic changes considered characteristic of pseudocoaxalgia both precede and outlast the clinical phenomena.

Two conditions in which the bony changes are similar to those in pseudo-coxalgia are tarsal scaphoiditis and epiphysitis of the tibial tubercle.

M. R. FLYNN, M.D.

Sever, J. W.: Two Unusual Cases of Injury to the Tibial Tubercle. *British M. & S. J.*, 1922, cxxxvi, 311.

The two cases reported illustrate the only types of injury to the tibial tubercle which may require operative treatment.

Case 1 was that of a tall, heavily muscled boy of 16 years who pulled the tibial tubercle loose in jumping. The fracture extended into the knee joint. The tubercle, which projected at an angle of 40 degrees to the tibia, could be felt under the skin.

At operation the tubercle was forced into position and fixed in place by a mattress suture of heavy kangaroo tendon. The patient made an uneventful recovery and in three months had regained normal function of the knee.

Case 2 was that of a tall well-developed man of 22 years who had had intermittent trouble with his knee from the age of 7, when it had been injured. Treatment was sought for increasing pain, disability, and swelling in the region of the tibial tubercle.

The tubercle of the tibia on the affected side was found to be larger than that on the other leg. Motion caused grating pain, and discomfort over the affected tubercle.

The X-ray showed that part of the tubercle had been separated and was apparently adherent to the under side of the patellar tendon. Motion of the knee caused grating of the fragment on the crest of the tibia and constant irritation. Following the removal of the fragment at operation the patient entirely recovered.

The author emphasizes the necessity for care in diagnosing these cases. Roentgenograms of both tibiae should be made for comparison as during the development of the epiphyseal center the latter is surrounded by cartilage giving the appearance of avulsion or fracture.

In the majority of these cases operation is not necessary.

JOHN W. POWERS, M.D.

Feutelsais, P.: Anterior Painful Apophysitis of the Tibia (Apophysite douloureuse antérieure du tibia). *Presse méd. Par.*, 1922, xxx, 270.

Traumatic lesions or partial fractures of the anterior tuberosity of the tibia have been described as "Schlatter's disease" or "Osgood-Schlatter disease," but Feutelsais states that these lesions have been known in France for a long time and were described by Boudly, Velpeau, and others.

Feutelsais reports the case of a youth who, four years before, at the age of 9 years, had had an attack of a condition diagnosed as tuberculous rheumatism. Recently during gymnastics he suffered an injury to the right knee. Examination by the X-ray showed that the anterior tuberosity of the tibia was separated from the diaphysis as if by some abnormal contraction of the quadriceps. The clinical symptoms and X-ray signs corresponded very exactly to those of the condition described as Schlatter's disease and the X-ray seemed to show the presence of a partial fracture of the anterior tuberosity. X-ray examination of the left knee, however, revealed a condition exactly similar to that of the right. As the patient had never had trouble with his left knee, as there had been neither bilateral traumatism nor abnormal quadriceps contraction, and as the roentgenograms of both knees suggested a partial wrenching of the anterior tibial tuberosity, it must be concluded that traumatism plays only a secondary rôle as a causative factor, the condition being evidently a variation from the normal in development. The case reported is of importance from the standpoint of etiology.

W. A. BRENNAN.

FRACTURES AND DISLOCATIONS

Ghillini, C.: Fractures by Tearing Efforts (Fratture da sforzo di taglio). *Chir. d. organi di movimento*, 1922, vi, 12.

Ghillini gives the resistance of various organic tissues to rupture, expressing it in kilograms per square millimeter.

The resistance of bone compared with that of muscle and tendon tissue is as 7.00 : 0.018 : 0.34. It is not possible for a tissue with a high coefficient of rupture to be fractured by one with a lower coefficient. Therefore when a bone is fractured by the traction of a ligament it must be admitted that the resistance of the bone was decreased by some pathologic condition.

Fractures of the coracoid process and the glenoid cavity, the great tuberosity of the humerus, the inferior epiphysis of the radius, the neck of the femur, etc., which have been attributed to laceration or avulsion have a different mechanism.

Fractures should be classified according to whether the bone was broken by a force acting tangentially or perpendicularly to its axis. When the force acts tangentially to the axis the effect is due to tension or compression. When it acts perpendicularly to the bone axis the effect is due to flexion or torsion.

W. A. BRENNAN.

McWilliams, C. A.: The Efficient Treatment of Compound Fractures. *Med. Rec.*, 1921, c. 353.

The first variety of compound fractures consists of those in which a sharp fragment of bone punctures the skin. The skin must be thoroughly cleaned about the fragment, the bone extremities cut off flush with the skin, and the fracture reduced. The puncture wound should be trimmed off and closed, possibly with a rubber drain.

The second variety of fractures consists of those in which there is a large wound of the soft parts and the latter are contused and dirty. In the proper treatment the patient is given first an injection of tetanus antitoxin. Under anesthesia the skin around the wound is shaved and cleansed with benzine, alcohol, and a 3½ per cent solution of iodine, the wound being protected with a pack during the procedure. The pack is then removed and all foreign particles are picked out of the depths.

After this is done the wound is flooded with ether followed by a 3½ per cent iodine solution, and the contused edges and fascia, frayed-out edges of the tendons, and pulped muscle are trimmed away. On exposure of the bone ends only entirely loose bone fragments are removed. The ends of the bones are cleaned by sawing off a thin slice or by biting off small pieces with a rongeur. If the fragments do not remain in apposition, one end is dovetailed into a depression of the opposite end and the fragments are held together by chromic catgut sutures. Screws or metal plates should be used only exceptionally and these cases should be treated with Dakin solution. The screws or plates should be removed as early as possible.

Divided nerves are anastomosed with silk. Wounds of large compound fractures are treated by the Carrel-Dakin technique immediately, being irrigated every two hours, night and day. The Carrel tubes and dressings are replaced daily. The fractured ends are held in apposition by proper splinting, the Thomas splint bent at the elbow being most applicable for fractures of the forearm in which any degree of traction may be obtained by twisting the Spanish windlass attached to the fingers.

Bacterial counts are made at various intervals and secondary closure is effected, unless the hæmolytic streptococcus is present, when the bacterial count is not more than one in two or three fields in two successive days.

The author recommends the Willems treatment of compound joint fractures, injuries, or infections in which active but never passive motion is employed. Devitalized and dirty tissue and free particles of bone are removed, synovial membrane is closed, and the Carrel-Dakin technique employed.

The after-treatment consists in baking, early active and passive motion, and general massage. Splints are removed as soon as practicable.

RUDOLPH S. REICH, M.D.

Blecher: The Treatment of Bone Fistulae and Bone Cavities Following Gunshot Fractures (Die Behandlung von Knochenstein und Knochenhöhlen nach Schussbrüchen). *Arch. f. Klin. Chir.*, 1921, cxviii, 419.

Besides sequestra and foreign bodies, the cause of fistulae is not infrequently of an anatomical nature, particularly when the bone contains cavities of considerable size with small openings. When no sequestrum or foreign body is demonstrable, conservative treatment is often successful. Instead of pastes (bismuth, paraffin), which not infrequently cause retention of secretion, the author uses a 10 per cent solution of silver nitrate. If this treatment does not bring about a cure within a few weeks, operation is indicated.

Short fistulae causing only a small bone defect and surrounded by hard cicatrices often heal after a circular incision has been made in the healthy tissue around them according to Nussbaum's method. Canals of some length are excised and, if possible, the bone is cut down to a trough or the wound is tamponed by Bier's method for two days and then sealed over air-tight with zinc paste. In a few cases cavities in the bone have been successfully filled with broad pedunculated muscle flaps. Flaps of fat also may be used, but are not certain to heal in. The cavity must be made sterile by lengthy preparation with Dakin-vuzin solution or a solution of iodine. In a few cases the author successfully used skin flaps to fill cavities in the bone.

DEUS (Z).

Waring, H. J., and Milligan, E. T. C.: Non-Union of Fractures. *Brit. J. Surg.*, 1922, ix, 408.

The authors call attention to the frequent occurrence of non-union in fractures and describe the treatment they have used. They consider the different long bones separately and give a short clinical history with the discussion of their treatment in ten cases. They divide cases of non-union into two classes: (1) those in which apposition obtains either primarily or following operative treatment, and (2) those in which there is lack of apposition from longitudinal displacement.

In the first group certain areas of long bones, i.e., the middle two-fourths of the humerus, the lower third of the shaft of the tibia, the neck of the femur, the upper third of the shaft of the femur, and the middle third of the shaft of the femur, show a definite tendency to non-union even when apposition is good and all care is exercised in the treatment. The fracture which most frequently gives rise to non-union is the transverse or slightly oblique fracture. If infection supervenes in fractures in these areas sluggishness becomes more marked.

In the second group of cases the lack of apposition is due to a variety of causes such as previous surgical interference, infection in the original injury with prevention of apposition by rigid parallel bones, etc. The cases reported had had previous non-operative or operative treatment. The treatment consists of preliminary operation to freshen up the ends

of the bone, to remove all fibrous tissue, and to test for and safeguard against infection. Three weeks later a second-stage operation is performed by one of two methods: (1) a stepping method; (2) comminution and jamming the ends of the bones together, with care to preserve the periosteum intact so that it will then act as a barrier against the spread of proliferating bone cells. External splinting is used to preserve alignment. M. R. FLYNN, M.D.

Levy, W.: The Picture of Paralysis of the Thumb Muscles in Drummers; Loss of Function of the Extensor Pollicis Longus from a Typical Fracture of the Radius (Das Bild der Trommeterschwäche, Anfall der Funktion des Extensor pollicis longus durch typischen Radiusbruch). *Zentralbl. f. Chir.*, 1922, *lxix*, 15.

Two cases are reported in which, as a result of typical fractures of the radius, there was loss of function of the extensor pollicis longus. This condition was the same as that described in the German Sanitary Reports as "drummer's paralysis," but in which the rupture of the tendon occurred following inflammatory changes.

In fracture of the radius the rupture of the tendon may occur at the time of the fracture or later after the beginning of good function; in these cases processes similar to those of drummer's paralysis must be assumed. The tendon is subject to injury because of its course in a groove of the radius, the latter being covered at the anterior end of the radial tubercle so that luxation of the tendon is prevented. Because of this particularly exposed position the tendon may be ruptured by the fracture, the resulting callus formation may hinder mobility, and the tendon may gradually rub itself through against the roughened edges of the fracture and lose its hold by the breaking of the tubercle. WORTMANN (Z).

Bange, F.: The Treatment of Typical Fractures of the Radius from 1907 to 1921 (Die Behandlung der typischen Radiusfrakturen in der Zeit von 1907-1921). *Arch. f. klin. Chir.*, 1921, *cxviii*, 578.

This article is a comparative study of the cases treated in the Berlin Clinic by various methods: with plaster of Paris or adjustable splints, without splints, and according to the method of Klapp, i.e., a short splint of plaster of Paris with the hand in extension (1910-1921). Of 2,800 cases of fracture of the radius the Klapp method could be used in 650. The ratio of men to women was 18:10. Most of the fractures were sustained after the fortieth year. The greatest number occurred between the ages of 50 and 60. The X-ray demonstrated volar displacement in only twelve cases. In one-fourth of all cases there was a fracture of the styloid process of the ulna. In only four cases was there any disturbance of the function of the sensory portion of the radial nerve.

In ninety cases treated by the plaster of Paris method there were twelve unsatisfactory results. In 202 cases treated with adjustable splints there

were thirteen unsatisfactory results. In fifty-eight cases treated without splints there were five unsatisfactory results. In 163 cases treated after the method of Klapp there were seven unsatisfactory results. The complaints in general consisted of pain and inability to supinate. In fractures of the styloid process of the ulna and in cases of displacement of the ulna toward the radius pain was unusually severe during the process of union or the formation of a pseudarthrosis. Good position and good function prevented discomfort. The latter phase of supination was often interfered with by slight dorso-radial malposition and usually when there was dorsal displacement.

Poor results were due to incorrect or too tight bandaging or too prolonged immobilization of the hand, fingers, or elbow causing permanent changes in the joints. When the Klapp method was used, early motion of the fingers was instituted. This was painless and prevented secondary joint changes. Union resulted on an average in forty-two days. In the absence of a dislocation, fixation by a cuff bandage was sufficient. FRANK (Z).

Magnuson, P. B.: The Mechanics and Treatment of Fractures of the Forearm. *J. Am. M. Ass.*, 1922, *lxviii*, 789.

After analyzing the mechanics of fractures of the forearm, the author groups such cases into three classes with reference to treatment: (1) the non-operative, ambulatory, (2) the non-operative, recumbent, (3) the operative.

In cases of fracture of both bones of the forearm, in which traction is an essential part of the treatment, it is difficult or impossible to maintain traction if the patient is out of bed. When the patient is recumbent a satisfactory method consists in suspending the forearm in a perpendicular position with the elbow flexed at a right angle and the weight of the upper arm acting as counter-extension. If more weight is desired a piece of plumber's lead pipe, hammered flat and bent to fit the arm, may be added.

In applying traction, the following facts should be borne in mind:

1. The extension must hold the radius and ulna parallel.
2. Extension should be exerted distal and counter-extension proximal to the line of fracture, no overlapping being allowed at the fracture line.
3. The fingers and thumb should be free.
4. Pronation and supination should be under the control of the surgeon and not of the patient.
5. Extension should be applied in such a manner that the hand can be moved without interfering with the direction of the pull.

In ambulatory cases measures must be taken to prevent ulnar angulation of the fragments.

In the operative treatment lateral incisions are made. Only absorbable material should be used for internal fixation. The author favors ivory.

JOHN W. POWERS, M.D.

Thomas, H. B.: Congenital Dislocation of the Hip.*J. Am. M. Ass.*, 1922, lxxviii, 323.

The author prefaces the report of his cases by outlining the history, etiology, and pathology of congenital dislocation of the hip. He emphasizes the need of a careful choice of cases for operation. He agrees with Ridlon that all patients under a year of age with shortening of less than 1 in. and all those over 3 years of age with shortening over 2 in. should be excluded from surgical treatment. His method of reduction and subsequent fixation is that of Ridlon.

Of twenty-six hips in children over 6 years of age, attempts were made to reduce eighteen. The cases followed up and in which the hips were found in place numbered five. There were twenty-four patients under 6 years of age, six of whom had bilateral dislocation. Forty operations were performed. Fifteen hips were reduced with a fair to good anatomical result and good function. The results in nine hips were poor or questionable. In six other cases the records are incomplete.

DAVID TELSON, M.D.

Girode, C.: Implantation of Dead Bone in Pseudarthroses and Fractures of the Neck of the Femur (L'implantation d'os tué dans les pseudarthroses et les fractures du col du fémur). *Rev. de chir.*, Par., 1922, xli, 60.

The author reports from Delbet's surgical clinic. Certain technical difficulties have been experienced in the treatment of pseudarthroses of the neck of the femur with autogenous grafts of fibula stripped of periosteum according to Delbet's technique. In 1915 Delbet overcame these difficulties by substituting for the autogenous graft an implantation of dead bone. This new technique was applied to the osteosynthesis of recent fractures. Fifteen such operations have now been performed and thirteen of these have been followed for a time sufficiently long to warrant conclusions as to the final result.

Horse-bone pegs were used in the first three cases but this material, though very hard, fractures easily. The bone screws used since then have been prepared from the tibia or ulna of the ox, the bone being removed immediately after the death of the animal and quickly immersed in 90 per cent alcohol. The diaphyseal cylinder of ox bone furnishes a sufficiently thick, compact, and easily workable substance for bone screws. A peg 12 mm. in diameter withstands a tension up to 450 kgm.

Fifteen fractures of the neck of the femur were secured with dead ox bone. Nine of these were pseudarthroses, three were less than two months old, and three were fresh fractures. Thirteen cases have been followed. The result was very good in only one, a transcervical fracture thirty-four days old. Sixteen and a half months later the patient had a shortening of 1.5 cm. but walked perfectly and the movements of the thigh had their normal range. In two other cases the results were regarded by the patients as satisfactory, but were not very good. In ten cases the final result was fair or poor.

The peg or screw of dead bone prepared and implanted in the neck of the femur may be eliminated like any other non-absorbable aseptic foreign body, may cause rarefying osteitis in its vicinity, may be resorbed very rapidly, or may fracture early or late. It was probably the cause of arthritis which developed in certain cases in this series. The result it gives in the treatment of pseudarthroses of the neck of the femur is clearly inferior to that given by the fibular autograft. Delbet has therefore returned to the latter. In the treatment of recent fractures of the neck of the femur a dead-bone screw has no more osteosynthetic value than a metallic screw.

The article contains short histories of the cases reported and several roentgenograms.

W. A. BRENNAN.

Tillier, R.: Two Cases of Inferior Epiphyseal Detachment of the Tibia Associated with Fracture of the Fibula (Deux cas de décollements épiphysaires inférieurs du tibia accompagnés de fracture du péroné). *Rev. d'orthop.*, 1922, xxix, 119.

The two cases observed by Tillier were those of children aged 12 and 13 years. The first case was a typical example of indirect detachment by ligamentous contraction; the second, an example of direct detachment due to pressure upon or shock to the skeleton.

In the first instance the roentgenogram showed detachment of the inferior tibial epiphysis and an external diaphyseal cuneiform and submalleolar fracture of the fibula. The injury was caused by a fall from a wall on the foot, the foot being turned in abduction and rotation in valgus. Reduction was effected under general anæsthesia. A perfect functional result was obtained.

In the second case the boy was knocked down by a carriage and one of the wheels passed over his right leg. Operation, which was performed immediately, revealed a fracture of the fibula and a cuneiform fracture of the posterior and external part of the tibial diaphysis. Reduction of the latter fracture was prevented by a detached piece of bone interposed between the fractured surfaces. The detached bone was removed. Reduction could be effected only by placing the foot in varus and internal rotation. Subsequently the reduction so obtained was found to be insufficient and a second operation was necessary. Two months later the functional result was excellent, but there was a possibility of ultimate deformity.

The author believes that when detachment of the tibial epiphysis is associated with fracture of the fibula by abduction, the fracture follows rather than precedes the tibial rupture. Further, that every inferior epiphyseal detachment of the tibia with or without fracture of the fibula but associated with an external cuneiform fracture of the diaphysis should be considered as due to a mechanism of abduction and external rotation, direct or indirect, in the course of which the pressure of the astragalus plays an important part.

In the treatment the surgeon should proceed as in cases of bi-malleolar fractures with a third posterior fragment since the tibial posterior fragment constitutes a posterior fragment partly adherent to the block formed by the internal malleolus and tibial plateau.

W. A. BRENNAN

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Littlewood, H.: Amputations at the Shoulder and at the Hip. *Brit. M. J.*, 1922, 1, 381.

The operations described by the author for amputation at shoulder and hip are: (1) inter-scapulo-thoracic amputation, and (2) supra-trochanteric amputation of the femur as a substitute in some cases for amputation at the hip joint.

The former operation may be required for trauma and certain cases of malignancy of the upper end of the humerus or scapula. It has been advocated also for malignant disease of the breast and extensive tuberculosis.

The flaps, of course, vary according to the exact position of the disease; two flaps are formed, a cervico-scapular and a pectoro-axillary.

The patient is placed on the sound side close to the edge of the operating table. The incision for the cervico-scapular flap is begun at the clavicle near the outer margin of the sternomastoid attachment, carried along the clavicle over the prominence of the shoulder, and along the axillary border of the scapula to a point below the angle and backward to about 2 in. from the spine. A flap of skin and subcutaneous tissue is then rapidly turned back, the posterior surface of the scapula being exposed with the muscles attaching it to the spine.

The trapezius, the latissimus dorsi, the levator anguli scapulae, the rhomboids, and the scapular attachment of the serratus magnus and the omohyoid muscles are then divided in the order named. Three or four vessels, branches of the suprascapular and posterior scapular arteries, may require ligation. The soft tissues are then separated from the clavicle close to the sternomastoid attachment, and the bone surrounded by a Gigli saw and divided, after which the subclavius is divided.

The entire upper extremity now falls away from the trunk, being held only by the subclavian vessels and the cords of the brachial plexus, which are fully stretched, stand out, and therefore are easily seen.

The cords of the brachial plexus are divided close to the spine with a pair of scissors. To lessen the shock an injection of cocaine into the nerve may be given before the division, but the author states that in his own three cases, in which cocaine was not given, no increase of shock was apparent.

Clips are applied to the subclavian artery and the artery is divided between them. The vein is then treated in the same way. The advantages of secur-

ing the artery first have been pointed out by many operators. The vessels may be ligated at this stage or after the parts have been removed. The anterior or pectoro-axillary flap is then cut and reflected as far forward as necessary.

The last stages in the operation consist of the division of the pectoralis major and minor muscles. The point of the division depends on the extent of the muscles which are to be removed.

After the division of these muscles the fore-quarter is removed. This exposes the thoracic boundaries of the axilla and the posterior triangle so that it is quite easy to excise any lymphatic glands which require removal.

The flaps are then sutured and a firm dressing is applied. For suturing, the author has recently used silkworm gut prepared with iodine.

The supra-trochanteric amputation is done for trauma, for malignant disease of the femur (generally for that at the lower end), and for tuberculosis.

The patient is brought to the edge of the operating table, resting on his sound side.

An antero-internal flap is first cut, beginning just below the antero-superior spine, coming down to a level to secure an adequate covering — that is, to one-third of the circumference of the hip joint — and then over the front of the thigh and upward on the inner and posterior aspect to a point near the ischial tuberosity. A postero-external flap is then cut. Any of the flaps used for an amputation at the hip joint would be suitable for this operation. In Littlewood's opinion the Furneaux-Jordan flap is far too long and bulky, but the incision should be kept away from the perineum whatever flaps are made.

The inner flap, consisting of skin and subcutaneous tissue, is now turned up about 2 or 3 in. and the femoral vessels are exposed, clipped with forceps, severed, and ligated. The muscles are next divided and separated as high as the neck of the femur; the ilio-psoas is divided last. The branches of the profunda artery are caught with clips, divided, and secured by ligatures. If the surgeon has a good assistant the loss of blood will be small. The muscles in the outer flap are now divided and separated from the bone, those attached to the great trochanter being severed last. After the formation of this flap the sciatic nerve is divided. The flaps are held to one side to expose the neck of the femur.

As the anterior part of the capsule of the hip joint is attached to the anterior intertrochanteric line, this must be separated from the neck of the femur upward for about $\frac{1}{2}$ in. by means of a rasp, without opening the hip joint. The neck of the femur is surrounded by a Gigli saw and the bone sawed through close to the trochanter. The limb is then removed, the hip joint being left intact.

The muscles can be brought together with deep sutures and the skin secured with silkworm gut. If desirable, the stump can be drained.

F. W. CARRUTHERS, M.D.

Moutier, G.: **Operative Procedures for Reconstruction of the Thumb** (*Les procédés opératoires de restauration du pouce*). *J. de chir.*, 1922, xix, 225.

Prehension is the most important function of the hand and is dependent upon the thumb. The thumb may be congenitally absent and occasionally this defect may be bilateral. Spina ventosa, sarcomata, enchondromata, and suppurative arthritis may necessitate the amputation of the thumb. The most common cause of loss of function of the thumb is injury. During the great war the majority of cases were due to the premature or accidental explosion of hand grenades.

The author considers two methods of reconstructing the thumb in cases of total mutilation. These are phalangization of the metacarpal, transferring the function of the thumb to the first metacarpal which is freed from the rest of the hand, and dactyloplasty which reconstructs an entirely new thumb from a homogeneous or heterogeneous graft. In cases of partial destruction of the thumb, transplants of skin, tendon, or bone may be necessary.

Phalangization of the first metacarpal bone is not difficult and gives an organ of prehension which is vigorous, well vascularized and innervated, and may be used soon after the operation.

Autoplasty combines the use of two grafts, a graft of skin and a graft of bone. These may be implanted simultaneously or at successive operations. Dactyloplasty consists in the grafting of the large or second toe or another finger to replace the missing thumb.

Of these operative procedures the author believes phalangization of the metacarpal bone gives the most satisfactory results. The indications for each method and the results obtained depend upon the age and occupation of the patient as well as the character of the injury. LOYAL E. DAVIS, M.D.

Merrill, W. J.: **Tendon Substitution to Restore the Function of the Extensor Muscles of the Fingers and Thumb**. *J. Am. M. Ass.*, 1922, lxxviii, 425.

The author reports a case in which extraordinary extension movement was restored to the fingers after severe traumatic injury of the muscles of the forearm. The patient was wounded on the dorsal surface of the forearm at the juncture of the middle and distal thirds, September 26, 1918. Débridement was followed by suppuration and a scar 4 in. long by $\frac{1}{2}$ in. wide which extended up from the wrist on the dorsal surface of the forearm. The power to extend the fingers and thumb was entirely lost; they were therefore flexed in the hand. The flexor muscles were normal and there was no evidence of inflammation. The only extensor muscle tissue left in the forearm was the extensor carpi radialis longior, the extensor carpi radialis breviar, and the extensor ossis metacarpi pollicis.

Six months after the wound had healed, operation was performed through an incision 10 in. long on

the dorsum of the forearm and hand. The scar and underlying cicatricial tissue were resected, exposing the interosseous membrane. The stumps of the extensor tendons were exposed at the wrist and slightly below it. The sheaths and tendons of the extensor carpi radialis longior and extensor carpi radialis breviar, which were intact, were utilized to function as extensors of the fingers. The extensor minimi digiti and the fourth division of the communis were attached to the third division of the communis and the latter was attached to the second division of the communis. The stump of the second division of the communis was attached to two-thirds of the extensor carpi radialis breviar. The tendon of the extensor carpi radialis longior was detached entirely and joined to the stumps of the extensor indicis and the first division of the communis tendons. The stumps of the extensors longus and brevis pollicis tendons were attached to the tendon extensor ossis metacarpi pollicis.

The exposed tendons were covered with thin pads of fat from the thigh. The hand was dressed on a palmar splint with the wrist, fingers, and thumb in dorsal extension and held in splints in the cock-up position for about seven weeks. The fingers and thumb could then be readily extended. After a few months of training the extension of the fingers and thumb was as complete as that in the other hand.

FRANK G. MURPHY, M.D.

Rokizkij, W. M.: **The Technique of Arthrodesis of the Knee Joint** (*Zur Technik der Arthrodese des Kniegelenks*). *Jubileiny Shorn. J. J. Grekova*, 1921, ii, 105.

The methods used up to the present time for arthrodesis of the knee joint have not given satisfactory results. Even the riveting methods, which Lexer recommended for the ankle joint, have not given lasting results. In 1905 Turner, in Russia, and later Hibbs, in America, proposed fixation of the knee joint by bringing the patella forward. By this method the joint is fixed anteriorly by a small bridge. According to the rules of mechanics, however, fixation by a wedge in the flexor surface is much more effective. The author therefore transplants the patella in the following original manner:

The knee joint having been opened by a transverse incision, the patella is removed and freed from the cartilaginous surface, periosteum, and soft parts. After further opening of the knee joint the crucial ligaments are removed and the cartilaginous surface of the tibia and femur is cut away. On the articular surface of the tibia a groove the width of the patella is chiseled out in a sagittal direction. A similar groove is made in the intercondylar fossa of the femur. Into the groove in the sagittal direction the patella is so inserted that what were before the anterior and posterior surfaces are now directed sidewise, one laterally, the other medially. To fix the patella in the groove the extremity is stretched at the knee joint, whereupon the patella slips into

the groove from behind and acts as a firm wedge fixing the joint in its posterior part in full extension. The wound is securely closed and an immobilizing splint is kept on for six weeks.

Arthrodesis of the knee joint by this method of Rokitski[?] assures absolute immobility. Furthermore, by the manner in which the patella is placed in the grooves, an extension of several centimeters in the length of the extremity may be obtained, as was demonstrated in two of the author's cases. The author has used his method in four cases with complete success. SCHAECK (Z).

Krugloff, A. N.: The Operative Treatment of Gunshot Wounds of the Knee (*Zur operativen Behandlung der Knieverwundungen*). *Kubanski Nauchno-Med. Voprosy*, 1921, 1, 94.

The author reviews the results of the treatment of forty-five cases of gunshot wounds of the knee during the civil war in Southern Russia. Death occurred in six cases and recovery in thirty-nine. Of the latter, absolutely normal function was regained in four and more or less limited function in eleven. In fifteen there was complete ankylosis, and in seven amputation was necessary. The result in two cases is unknown because of too early evacuation. There was no suppuration in twelve cases which were cured by conservative measures without any operative interference. In three cases the thigh and legs respectively were amputated primarily because of severe complicating injuries. When suppuration was present in the joint, extensive arthrotomies were done, and when injuries to the bone were found, resection was done immediately. Of the cases treated by simple arthrotomy (without serious

bone injuries), three were fatal and thirteen were cured. One death resulted from pneumonia and two from sepsis in spite of subsequent amputation.

Of the fifteen cases in which resection was done, ten reached the hospital within the first two weeks after injury. Nine of these were cured and one was fatal. Of five cases which reached the hospital during the later weeks, three were fatal and two were cured by resection. All of the fifteen cases of resection were septic previous to the operation. Of the eleven patients who withstood the operation, eight had a bony ankylosis and two a fibrous union of the bones. In one case the result is unknown. In four cases the extremities were immobilized at right angles after the resection of small pieces of bone which were causing the joint recesses to gape widely. In this manner the extremity was put into abduction and outward rotation. At the end of two to three weeks, when the severe infection had subsided, the leg was extended. After sufficient resection for septic wounds of the knee the bone stumps were pulled far apart and the gaping wound was tamponed. In time the bones became approximated spontaneously and later a slight corrective operation was sufficient to obtain bony ankylosis.

The most important conclusions are:

In suppurative gunshot wounds of the knee with splintering of the epiphyses, resection should be done at once. If splintering of the epiphyses does not occur, an extensive arthrotomy may suffice. If this is ineffective, a disc about 1 to 2 cm. thick should be resected from both epiphyses during the next few days. In neglected septic cases and in those of persons in poor general condition, a primary amputation is best. L. NEUWELT, M.D.

SURGERY OF THE SPINAL COLUMN AND CORD

Bradfield, E. W. C.: Fracture of the Atlas and Axis Vertebrae. *Indian M. Gaz.*, 1922, LVII, 59.

Fracture of the atlas and axis in which the injury is not fatal is rather uncommon, although several cases have been reported in the literature. The author's case was that of a boy 10 years of age who, two months prior to his admission to the hospital, fell into a well, landing on his side, and was rendered unconscious for a short time. This accident was followed by severe pain for ten days and permanent stiffness of the neck. There was only very slight lateral movement of the head, toward the right only.

Flexion and extension were limited. A hard bony mass could be felt to the left of the midline just under the occiput and continuing downward 1½ in. There was no tenderness. The knee jerks were slightly exaggerated. The plantar response was extensor in character. No other nerve symptoms were noted. The X-ray showed the axis vertebra to be dislocated backward. The atlas was fractured.

P. W. CARRUTHERS, M.D.

Girolamo, L.: Reflex Scoliosis Due to a Mobile Kidney (*Scoliosi riflessa da rene mobile*). *Riforma med.*, 1922, XXXVIII, 199.

Bender, in 1903, was the first to describe a reflex deviation of the spinal column associated with a mobile kidney. Since then only a few other cases have been recorded in the literature. The author reports the case of a woman 27 years of age who had suffered from a kidney disturbance and generally vague but at times violent pain in the spine for twelve years. On examination the lumbar portion of the spinal column showed a curvature toward the left and a certain degree of rotation. The maximum concavity did not deviate more than 2.5 cm. There was a compensatory curve in the dorsal region. The right shoulder was lower than the left. Palpation of the abdomen disclosed displacement of the right kidney. A right nephropexy was done. After twenty-four days in bed the patient was completely cured of her symptoms and there was complete disappearance of the lumbar scoliosis. This recovery has persisted.

From a study of his own case and others reported the author reaches the following conclusions:

1. Among the infinite variety of complications which may arise from mobile kidney is that of a lateral curvature of the lumbar vertebral column—a reflex lumbar scoliosis—in which anatomopathologic deformity of the skeleton is usually absent and therefore there is no fixation. In such cases a cure may be obtained by nephropexy even after a long period.

2. One type of reflex lumbar scoliosis due to mobile kidney is the “homologous and homolateral scoliosis” with the concavity toward the side of the affected kidney. This is due probably to a reflex posture of defence against the pain to decrease the space in which the posed organ is able to move and the traction and pressure caused by it, or the result of a spastic irritative state of the lumbodorsal muscles of the same side due to a reflex action exerted upon them by the traction and pressure of the posed kidney.

3. Another type of reflex lumbar scoliosis due to mobile kidney is the “heterologous or crossed scoliosis” with its concavity opposed to the side of the affected kidney, in which the convexity of the lumbar column toward the side of the affection provides greater support for the kidney and restricts the renal niche. Or there may be paresis of the muscles on the affected side due to inactivity or simple contraction of the antagonistic muscles of the normal side, the column becoming curved without spasticity.

3. In cases of reflex scoliosis due to mobile kidney the proper treatment is nephropexy.

W. A. BRENNAN.

Feutalais, P.: Hysterical Pseudo-Pott's Disease; Remarks on the Diagnosis of Pott's Disease (*Pseudomal de Pott hystérique; quelques remarques sur le diagnostic du mal de Pott*). *Rev. d'orthop.*, 1922, XLIX, 37.

The author's patient was a young girl much given to outdoor sports. After an attack of influenza she complained of pain in an area of the back in which a fluctuating abscess was found. The abscess disappeared, but the vertebral pains continued. When the author examined the patient she showed a slight, clearly defined antero-posterior projection of the vertebral column in the dorsolumbar region (twelfth dorsal, first and second lumbar vertebrae). Palpation and pressure were painful. The spine was very freely movable, however, and its movement was painless. Roentgenograms did not show any osseous or articular lesion of the column. In spite of these findings a diagnosis of Pott's disease was made on the basis of the spinal projection, the character and persistence of the pain, and the patient's pallor.

On further investigation, the condition was found to be due to hysteria. The spinal projection was only an exaggeration of a congenital variation. It is possible, however, that the influenzal infection may have had a temporary localization there. At any

rate, transitory inflammation sufficed in this predisposed patient to set up persistent pain.

The author lays stress on the fact that contraction or stiffness of the spinal column should be considered the essential symptom of Pott's disease. He reports a few cases simulating Pott's disease, in all of which the latter could be ruled out by the absence of contraction and stiffness.

W. A. BRENNAN.

Leri, A.: The Fifth Lumbar Vertebra and Its Variations (*La 5^e vertèbre lombaire et ses variations*). *Presse méd.*, Par., 1922, XXX, 135.

Leri has attempted to determine the frequency of sacralization of the fifth lumbar vertebra as disclosed by the X-ray and the relationship between it and its clinical manifestations. He has collected the sacrolumbar roentgenograms of 100 patients, eliminating those in which an error was apt to arise from obliquity of the X-rays. In 53 per cent the roentgenogram seemed to indicate a bony contact between the fifth lumbar vertebra and at least one of the two neighboring bones. This, of course, does not prove an anatomical contact. Of the fifty-three cases the condition was unilateral in six. In the entire 100 cases there were only twenty-three in which the form of the transverse processes corresponded to the type which is described in the textbooks as normal. The X-ray therefore shows that sacralization is so frequent that it can scarcely be called an anomaly.

Leri's study of the symptoms leads him to conclude that a sacralization manifested even markedly by the X-ray is rarely a cause of pain, and that the roentgenographic demonstration of sacralization is not a sufficient reason for attributing to it a deformity of the lumbar region or lumbar or sciatic pain of obscure origin. This does not mean that sacralization is never painful. There have been cases in which pain was relieved by the operative removal of a hypertrophied transverse process, but the complete or relative failure of the majority of such operations is too frequent to justify general adoption of the term “painful sacralization.”

Ossification of the ilio-lumbar and sacro-lumbar ligaments, which has been regarded by many authors as the most clearly demonstrated cause of sacralization, Leri believes causes only a pseudo-sacralization of rheumatismal origin. This condition is painful, and the pains are more or less limited to the lumbo-sacro-iliac region, being due to the evolution of chronic rheumatism in this region.

According to the author's roentgenograms two anatomical conditions modify the dimensions of the lumbo-sacral space as much or more than the volume of the transverse processes of the fifth lumbar, viz:

1. Extraordinary variations in the form of the fifth lumbar vertebra and its varying degree of obliquity. These may cause a diminution in the lumbo-sacral space due to a transverse increase of the vertebra or to its obliquity in relation to the sacrum. In either case the appearance of sacralization results.

4. Variation of the position of the fifth lumbar vertebra in relation to the iliac bones. When the vertebra is embedded deeply in the sacrum, forced anatomical and X-ray contact may be established. This is more noticeable in males than in females.

W. A. BRENNAN.

Work, P.: Multiple Diverse Tumors Affecting the Spinal Cord. *Colorado Med.* 1922, VII, 25.

Not rarely cases of new growths of multiple distribution are reported, but a review of the literature fails to disclose a reported case of multiple tumors not of identical histology.

The author reports a case of extramedullary tumor causing for a long time non-incapacitating symptoms which were somewhat relieved by operation and in which two lesions were found, one epidural, the other subdural and of different pathology, which were not suspected at the time of the first operation and not influenced by surgery. This case shows that in cord obstruction the localizing phenomena are those proper to the nerve fibers situated at the highest level of interference with conduction.

The patient was a woman 60 years of age. Her family history was negative. When 30 years old she had spinal meningitis from which she entirely recovered. The first indication of the present trouble began twenty years ago following a severe attack of pneumonia when she noticed that her left side was numb and "felt frozen." Ten years ago a "snapping pain" developed in the left great toe and several operations were performed for suspected local pathology but without relief. Shortly afterward, formication was noted in the foot and lower calf. The patient's gait gradually became more unsteady and in November, 1900, she was confined to bed with contractures of the left leg. Blood and spinal fluid Wassermann tests were negative. The spinal fluid showed increased globulin, 12 cells, no xanthochromia. A small extramedullary tumor at the sixth or seventh thoracic spinal segment was diagnosed. December 31, 1909, a small brownish irregularly crab-shaped extradural growth at the level of the sixth thoracic segment was removed by McKinnie.

The patient did not improve, and symptoms practically similar to those previously present on the left side developed on the right side. She was therefore again operated upon in June, 1911, by McKinnie.

At the level of the eighth cord segment there was seen, even before the dura was opened, a fusiform swelling 1 in. long, to the left of the cord. Incision of the dura allowed the escape of a small amount of fluid and revealed a firm broad band of adhesions running leftward from the posterior ligament and attached to the dura at the points of emergence of the eighth and ninth sensory roots. This band was laminated and contained within it a considerable quantity of gelatinous yellow substance which was lost in the removal of the growth. Removal was easily accomplished without undue hemorrhage, and

the lateral aspect of the cord was found only slightly compressed.

The pathologic report by Ophuls showed the first specimen to be a fibroma and the second a cyst wall with calcification which was classed as an osteoma.

CARE R. STEINKE, M.D.

Parker, H. L.: The Diagnosis of Tumors of the Cauda Equina, Conus, and Epiconus Medullaris: A Report of Nine Cases. *Am. J. M. Sc.* 1922, CLXXI, 417.

After reporting the clinical and operative findings in eight cases of tumors of the cauda equina and conus medullaris the author discusses the diagnostic points they presented.

Slowly growing tumors were characterized by a long course and clear-cut signs. The greater the malignancy, the more rapid the course and the more diffuse the signs. The sacral canal, being wider, permitted tumors to grow for a longer time without localizing signs.

Of eight tumors, two were encapsulated (one an endothelioma and one a glioma); three were ependymal-cell gliomata which filled the sacral canal and extended higher into the lumbar region than the surgeon thought safe to invade; and six showed a tendency to erode the dura, bone, and muscle.

Pain, which was the most constant and distressing symptom and was aggravated by sudden jars and jerks, was diffuse or radiated down the back of the thighs. In two cases of intramedullary tumors it was localized in one spot. In the cases of caudal tumors and even in those of purely intramedullary conus tumors it was usually located in the back. It was described as a cramp-like burning numbness or as a steady, constant, burning ache (this differentiated it from the pain of tabes dorsalis and multiple neuritis). Determination of the point at which the pain was felt first and its subsequent extension was helpful in outlining the spread of the tumor. The prone position was intolerable in some cases. A long history of local pain, even without signs of tumor, necessitates close observation of the case.

A test should always be made for local tenderness of the spine. One of the author's patients had rigidity of the lumbar spine. In seven cases there was weakness of the lower extremities (slight in one; complete in two). Muscular weakness, always associated with sensory and sphincter disturbances, was diffuse, sharply localized, unilateral, bilateral, symmetrical, or asymmetrical. Paresis of the lower extremities associated with pain but without other physical signs does not indicate the presence of a tumor or its location.

Next to pain, sphincter disturbances were the earliest symptom in three cases. In five, there was difficulty of bladder control associated with perianal or saddle hyperæsthesia or anaesthesia. Rectal control also was usually affected.

Sexual impotence without loss of rectal or bladder control was present in one case. Erection was maintained and ejaculation abolished in one case.

Sensory changes varied from a slight loss, of which the patient was unaware, to complete anesthesia of the lower extremities. A history of sensory changes had less value than other subjective complaints. There may be hyperesthesia, numbness, tingling, a sensation of cold, or anesthesia. The degree of sensory loss was fairly proportionate to motor weakness but not to the size of the tumor or the extent of involvement of the surrounding structures.

The Achilles tendon reflex was absent or diminished. The patellar reflex was gone in all but one case. Occasionally the cutaneous reflexes were disturbed.

A "dry" spinal puncture, when done by an expert, should arouse the suspicion of tumor. Edema of the lower extremities was present in one case.

In the differential diagnosis consideration must be taken of double sciatica, myositis, neuromuscular pain, hypertrophic arthritis of the lumbar spine, tuberculous or syphilitic meningo-radicularitis, toxic neuritis with swollen roots associated with pain, incontinence, and saddle anesthesia, sacral tuberculosis, a pelvic tumor pressing upon and destroying the roots of the lumbar or sacral segments after emerging from the sacral foramina, and destruction of the sympathetic ganglia and plexus. Intense constant pain rules out a degenerative process such as spina bifida occulta, lipoma of the sacrum, or

Fuch's so-called myelodysplasia with symptoms of enuresis, sensory disturbances, and weakness of the lower limbs.

The article is summarized as follows:

1. Tumors of the cauda equina, conus, and epiconus are not rare. Of thirty-three patients with spinal cord tumors operated on since 1916, eight had tumors in one of these areas.

2. The course of the disease up to the time of operation was relatively long, the longest being eight years and the shortest five months.

3. The condition is characterized by pain, weakness of the lower extremities, peri-anal or saddle anesthesia, and loss of control of the bladder and rectum.

4. Pain may precede other signs by many months; at first it is intermittent, but later becomes constant. Movement usually relieves it and the patient finds most comfort in the sitting position.

5. Sphincter disturbances may be absent when the other signs are well marked.

6. Spinal puncture is a valuable aid (primarily to exclude other diseases) and may suggest also the condition of the dural canal.

7. While a diagnosis of tumor somewhere in the lowest cord segments is comparatively simple, the exact localization is frequently impossible or extremely difficult, and a surprising degree of involvement may often be present with few signs and symptoms.

WALTER C. BURKET, M.D.

SURGERY OF THE NERVOUS SYSTEM

Adson, A. W.: The Gross Pathology of Brachial Plexus Injuries. *Surg., Gynec. & Obst.*, 1922, XXIV, 351.

The author reports the results of a study of 101 patients with injuries of the brachial plexus treated in the Mayo Clinic from January, 1910, to March, 1921. In forty-five cases the injury was due to obstetrical traumatism, and in fifty-six to traumatic injuries of various types, such as direct blows causing fracture, dislocations, forcible separation of the head and shoulder, belt injuries, severe torsion of the brachial plexus, and gunshot and stab wounds. The paralysis varied from a slight disturbance of one root to complete paralysis of the entire brachial plexus.

The majority of patients with birth palsy presented injuries of the fifth and sixth cervical nerves. In some instances other nerve trunks were involved. Recovery occurs in some nerve trunks, while others remain impaired.

In order to obtain data on the degree of improvement of patients not operated on, those with birth palsy were classified into three groups according to age: (1) those less than 2 years, (2) those between 2 and 5 years, and (3) those more than 5 years. In one instance only was surgical treatment instituted. The etiological factors were practically the

same throughout. In the first group the average return of function was 37 per cent, in the second group 56 per cent, and in the third group 65 per cent.

The fifty-six patients with traumatic injuries of the brachial plexus were studied according to the following classification: injury of the shoulder and neck without fracture or dislocation, twenty-three; injury of the shoulder and neck with fracture of the clavicle or humerus, seventeen; injury of the shoulder and neck with dislocation of the clavicle or humerus, five; belt injuries, thirteen; gunshot wounds, seventeen; stab wounds, one.

Twenty-four patients of this series were operated on. In fourteen cases there was no return of function and in ten a return of approximately 34 per cent. Thirty-two patients were not operated on. The patients in this group showed signs of recovery apparently contra-indicating exploration. Four failed to obtain return of function and twenty-six had a return of approximately 45 per cent. Information regarding the other two is lacking. The data show that in some cases there is slow improvement; patients with mild types of paralysis are benefited by medical treatment, but surgery offers very little. Occasionally surgical treatment is indicated, but a favorable prognosis is doubtful except in cases of

gunshot and stab wounds in which the injury simulates that of the ordinary peripheral nerve injury.

The treatment depends on the cause and degree of the injury. No one method, medical, neurosurgical, or orthopedic, should be used for all brachial plexus injuries.

Since many of the injuries are slight and a fair degree of recovery follows massage and exercise, surgical treatment should not be instituted too hastily.

It is evident that surgery will offer little in the way of cure of brachial plexus injuries as experimental results show that the lacerations are elongated tears which in most instances, provided the ganglion has not been evulsed, are situated within 3 cm. of the intervertebral canal.

Gunshot and stab wounds of the brachial plexus should be treated in the same manner as wounds of peripheral nerves in other parts of the body. Associated dislocations or fractures must not be neglected.

Adson, A.: *The Treatment of Brachial Plexus Injuries*. *Northwest Med.*, 1927, 22, 33.

Injuries of the brachial plexus vary in severity from a slight disturbance to complete paralysis of one or more roots, the result of effusion of blood and synovial fluid, shoulder dislocation, fractures, gunshot and stab wounds, stretching of nerves, laceration, and evulsion of the roots.

The treatment depends on the cause and degree of the injury. No one method, medical or orthopedic, is applicable to all brachial plexus injuries.

Since many of the injuries are slight and a fair degree of recovery follows massage and exercise, surgical treatment should not be too hastily instituted. When needed, it should be used to liberate constricted nerves and to bring about an end-to-end anastomosis of the severed fibers.

Gunshot and stab wounds of the brachial plexus should be treated in the same manner as peripheral nerve wounds in other parts of the body. Associated dislocations or fractures should not be neglected.

H. A. McKinnitt, M.D.

MISCELLANEOUS

CLINICAL ENTITIES — GENERAL PHYSIOLOGICAL CONDITIONS

Matthes, M.: *Malignant Granuloma* (Ueber das maligne Granuloma). *München med. Wochenschr.*, 1927, LVIII, 1226.

Granulomata belong, with the lymphosarcomata and the true pseudo-leukemias, to that group of diseases which were formerly designated collectively by the term "pseudo-leukemia" and included all conditions showing multiple glandular swellings and a tumor of the spleen without any considerable increase of the white blood corpuscles.

The malignant granuloma (Hodgkin's disease) forms a disease picture which frequently leads to diagnostic difficulties. Pathologically it is characterized by a proliferation which originates from the connective tissue of the lymph glands and contains abundant plasma cells, Sternberg's giant cells with centrally situated nuclei, and frequently a large number of eosinophilic cells.

According to the investigations of Much and Liebmans, a relationship between malignant granuloma and tuberculosis is very probable. The glandular swellings are movable and non-adherent as in aleukemic lymphadenitis, and the splenic tumor is usually insignificant. The blood picture shows frequently an eosinophilia and a moderately marked leucocytosis. The febrile course may be quite characteristic, irregular periods of fever alternating with afebrile periods. During the fever the patient feels very ill, the glands become more swollen, and the leucocytosis is more marked.

Prurigo and eczematous skin rashes may be observed as early symptoms. The urobilinogen and

dialo reactions are often positive. The proliferation of the lymphatic tissue in the mediastinal space may cause diagnostic difficulties if no other visible glandular swellings are present. In such cases the roentgenogram is very valuable. If the disease is manifested only by periods of fever and splenic enlargement, the differentiation from typhoid fever is difficult. A negative tuberculin test is of importance. Pains in the bones resemble those of leukemia and pernicious anemia.

As a rule malignant granuloma is fatal but its course can be delayed by roentgenization.

BRUNNER [2]

Sauerbruch, F., and Lebsche, M.: *The Treatment of Malignant Tumors* (Die Behandlung der bösartigen Geschwulste). *Deutsch. med. Wochenschr.*, 1922, XLVI, 83, 122.

Early diagnosis, early operation, and the patient's reaction to carcinoma are the factors of chief importance with regard to permanent results of treatment. The modern conception of carcinoma approaches that of the old humoral theory according to which carcinoma is a general disease with local changes. The modern attempts at treatment endeavor to stimulate the hematopoietic organs and to increase the resistance of the connective tissue to the neoplasm. All these methods may aid surgical procedures. The late treatment of tumors gives poor results.

The dangers and disadvantages of roentgen-therapy are discussed, including the more rapid and extensive formation of metastases in cases of sarcoma. The results of intensive irradiation, especially in gynecological conditions, cannot be

denied, but in malignant surgical tumors the conditions are more complicated. The malignancy of a tumor cannot always be recognized in a clinico-surgical sense from its reaction to roentgenotherapy, and it is assumed also that the various parts of the tumor show varying degrees of sensitiveness to the X-rays, the older resting parts being less sensitive than the younger progressive parts. The thickness, depth, the tissue in which the carcinoma has its origin, and the patient's age and general condition are of decisive importance in the selection of treatment and the prognosis.

The results obtained by the treatment of malignant tumors in various parts of the body by operation and radiation are compared. There was marked variation even in the cases of skin carcinoma which are attacked most definitely and effectively by radiation. It must not be forgotten that many tumors have a marked tendency to retrogress spontaneously, especially when they are left alone; generally the results in these cases are good and the resultant scars are scarcely visible. The results of radiation of papillomatous skin cancers are less certain.

Operable carcinomata of the lips should be operated upon; also those of the mucosa of the cheek, the pharyngeal wall, the palate, the tonsils, and the salivary glands, which when inoperable can be rendered operable by radiation. Cancers within the nose are particularly suitable for combined surgical and X-ray treatment. Tongue carcinomata should always be operated upon as they grow excessively after radiation. Only mammary carcinomata which are inoperable should be treated by radiation; all those which are operable should be treated surgically without exception.

The question of radiation after operation is still undecided. The radiation of carcinomata of the digestive organs results in transient improvement and occasionally in retrogression of the tumors but not in cure. Early diagnosis and operation increase the possibility of cure and therefore only truly inoperable cases should be irradiated. The same applies to rectal carcinoma; postoperative irradiation increases the danger of recurrence but decreases the pain and the necrosis. In cases of tumors of the kidney, adrenal, pancreas, bladder, and prostate, operation gives better results than irradiation. The results of roentgenotherapy in sarcomata of the mediastinum and the base of the skull are very promising at first but permanent cures are not the rule. Therefore, if the local and general conditions permit, the earliest possible radical procedure is indicated.

The early radical operation is still the main weapon against cancer although the wonderful results from actinotherapy cannot be denied. The general and individual indications for both methods and the best treatment must be determined by careful clinical tests; routine surgical treatment of operable tumors and X-ray treatment of inoperable tumors is to be avoided.

BODE (Z).

BLOOD

Sinclair, T.: *Surgery of the Blood*. *Brit. M. J.*, 1922, 1, 375.

The author outlines the principal indications for surgical measures and the simplest technique used in the treatment of diseases of the blood and blood-forming organs.

To prepare hæmophiliacs for operation he endorses the use of calcium, hæmoplastic serum, repeated small transfusions of homologous blood at short intervals, or the daily subcutaneous injection of 40 c.cm. of any mammalian blood or human blood not necessarily homologous.

In pernicious anæmia the surgical demands in many cases are limited to transfusions of small amounts of blood at ten-day intervals. It seems doubtful whether the results claimed by the Mayo Clinic for splenectomy entitle us to urge the operation with any degree of conviction.

In hæmorrhage the two important indications are the restoration of the blood pressure by the copious administration or transfusion of fluids and the maintenance of the warmth of the body by internal and external means. The results of the subcutaneous injection of salines have not been impressive, but in extreme cases homologous blood should be employed intravenously. We have our choice of the hydrostatic method, the multiple Record syringe method, and the use of the paraffin-lined Kimpton-Brown tube.

Embolism is more frequent after operations than following infections of veins. The mechanism of thrombus and embolus formation is discussed. Electrical ionization over the areas of thrombosis appears to be efficacious.

In true polycythæmia surgery directed to the spleen is contra-indicated. For the present, the best treatment appears to be the application of radium to the long bones or possibly deep X-ray therapy.

In Banti's disease there is an indication for early splenectomy, performed before cirrhotic changes in the liver become too far advanced.

In splenomedullary leukæmia radium or intensive deep X-ray treatment is indicated. The same methods apply to lymphatic leukæmia.

Hodgkin's disease, on the other hand, offers in its early stages a field for operative surgery. The spleen need not be extirpated but the removal of clusters of glands which are large, discrete, and not adherent, is definitely beneficial. The results from the radium treatment of this disease are very encouraging.

A number of conditions are mentioned briefly. The author has not seen the occurrence of tonsillar anæmia following tonsillectomy. Splenectomy has a high curative value in hæmolytic jaundice. In purpura hæmorrhagica it may prove curative. A failure in skin grafting may be due to the fact that the bloods were not homologous. Phlebotomy is useful in congestion of the lungs in immersion cases,

and sometimes in pneumonia, apoplexy, high temperature, imminent uræmia, and polycythæmia vera.

The production of an artificial leucocytosis by injections of nucleinic acid or sodium cinchamate has been advocated.

J. D. ELLIS, M.D.

BLOOD AND LYMPH VESSELS

Ravaut, P.: The Technique of Intravenous Syringe Injections (*Technique des injections intraveineuses à la seringue*). *Presse méd.*, Par., 1922, xxx, 347.

The technique described is applicable especially to the injection of arsenical salts. The points emphasized are as follows:

1. It is best for the patient to be fasting but this is not absolutely necessary.
2. The injection may be made into any vein. Those in the elbows are the most suitable, especially those in the right elbow.
3. Moderately compress the arm above the elbow by means of a rubber tube kept in place by a forceps, and then wait one or two minutes until the veins are tense. Their turgescence may be increased by rubbing the skin with cotton dipped in warm water or xylol.
4. When the veins are swollen, select that one which gives the finger the clearest feeling of a full cord. In selecting the vein the finger is preferable to the eye and is the only guide when the veins are not visible.
5. Disinfect the area of injection with alcohol or iodine.
6. The solution to be injected should be prepared in advance, but at the last moment.
7. See that the needle of the syringe is tightly adjusted and keep the body of the pump between the thumb and index finger.
8. Perforate the skin over the selected vein, keeping the syringe as nearly parallel to the cutaneous surface as possible.
9. When the blood has entered the body of the pump remove the bandage on the arm by detaching the forceps and then make the injection slowly. The greater the dosage, the slower the injection should be in order to allow the drug to become diluted in the blood. It is well to inject about one-tenth of the dose at first and then wait a minute to judge of the effect. The blood may be aspirated and then re-injected as in this manner the drug is mixed with it more thoroughly. The injection should be entirely painless.
10. If any part of the injection penetrates the cellular tissue pain and redness will be apparent immediately and edema after a time. Such complications may be avoided by making a small incision immediately after the puncture and cauterizing.

In the nursing the external jugular vein, the epicranial veins (which are often voluminous in infants with congenital syphilis), and the dorsal veins of the foot may be used. W. A. BRENNAN.

Oppel, W. A.: Ligation of the Veins in Cases of So-Called Spontaneous Gangrene (*Die Unterbindung der Venen bei der sog. spontanen Gangrene*). *Verhandl. d. russ. chir. Gesellschaft*, Petrograd, 1911.

The author, who has studied this subject experimentally and clinically for many years, discloses it on the basis of a large amount of clinical material.

The experimental basis for ligation of veins in gangrene lies in the fact that the arterial ligation which follows the venous ligation raises the blood pressure in the collateral arteries. Experimentally Oppel and a number of his students proved that ligation of a vein of a higher order, as compared with ligation of an artery, causes a much greater increase in the arterial blood pressure than the ligation of a vein of like order. In the so-called "spontaneous gangrene" there is a decided decrease in the arterial flow due to disease of the arteries. On this basis ligation of the vein to equalize the flow to and from the part appears logical.

As it is usually the foot that suffers in cases of ischæmia, Oppel recommends ligation of the popliteal vein. This operation was first performed in 1910. In 1913 Petroff recommended ligation of the femoral vein. From the point of view of reduced circulation, ligation of the femoral vein, which is a vein of higher order, is theoretically the more efficacious.

The author has ligated veins in forty-one cases of gangrene. In twenty he ligated the popliteal vein; in twenty, the femoral vein; and in one, the axillary vein. Of the forty-one ligations twenty-one were followed by amputation after an interval of from a few days to two months. In these cases the alleviation of pain immediately after the operation was only temporary. In sixteen cases the pain entirely disappeared and function was resumed. Of eight of these sixteen patients who could be traced, two were perfectly well six months after a popliteal ligation, and one patient, who had a popliteal ligation on one side and a femoral ligation on the other, was perfectly well a year later.

A patient who has had a vein ligated on both sides has just entered the clinic. In 1910 bilateral popliteal ligation and disarticulation of the right great toe were done for gangrene. In 1921 there was function of the right leg and no pain. In 1920 disarticulation of the left great toe was done. In 1921 there was an unhealing ulcer at the point of articulation. Five years after a popliteal ligation and after four years of good health, one patient was obliged to undergo amputation of the thigh. One patient appeared five years after a popliteal ligation with pain in the other leg.

The author estimates the value of his own operation from a practical standpoint with great modesty. The ligation of the popliteal or the femoral vein creates in the amputation stump a more favorable condition of circulation for the amputation that is imminent. In exceptional cases the gangrene may be arrested by ligation. In the prodromal stage of

spontaneous gangrene the pain disappears after ligation of the vein and the extremity may become able to function. Under certain conditions this favorable state may continue for years. Ligation of veins belongs among the palliative operations. The fundamental cause remains uninfluenced. Oppel believes, however, that ligation of veins possesses a certain value which may be recognized even after the discovery of a causal therapy since beyond question it improves the local circulatory conditions in the diseased extremity. MESSI (Z).

Gluck, T.: Arteriotomy (Ueber Arteriotomie). *München med. Wchnschr.*, 1922, lxi, 53.

Arteriotomy was practiced in antiquity but was later forgotten and mentioned only rarely in the textbooks of surgery. Gluck and Baginsky recommended it in 1898 in cases in which venesection was of no avail because of weak heart action; both of them obtained good results with it. In November, 1911, Eckstein and Noeggerath again called attention to it because they found that opening of the radial artery was a life-saving measure in cases of pneumonia and pulmonary edema in which venesection was of no value because of paralysis of cardiac activity.

On the basis of his own experience the author again calls attention to section of the radial or ulnar arteries as a life-saving measure in cases in which venesection results in no flow of blood at all or the flow of only drops. The artery is exposed and incised, and after a sufficient quantity of blood has been withdrawn a circular or a lateral ligature is applied. SIMON (Z).

Guleke: Palliative Mediastinotomy in Aneurism of the Arch of the Aorta (Ueber die entlastende Mediastinomie beim Aneurysma des Aortenbogens). *Zentralbl. f. Chir.*, 1921, xlviii, 1877.

In a case of aneurism of the arch of the aorta with severe clinical symptoms Guleke performed an anterior-superior longitudinal mediastinotomy according to Sauerbruch's method and sutured the third costal cartilage between the borders of the sternum. The improvement has continued for three and one-half months. The operation is indicated only in cases of extreme compression symptoms and where the sac of the aneurism is so situated that it will not be injured by the operation. PEIPER (Z).

Ballance, C.: Ligation of the Innominate Artery for Innominate Aneurism. *Br. J. Surg.*, 1922, ix, 438.

The author lays particular stress upon the following points:

1. Cases about to be subjected to operation should not be previously treated by the method of Valsalva.

2. There is a group of cases of aneurism of the innominate artery (aneurism of the bifurcation) which are suitable for proximal ligation. Distal ligation causes the aneurism to become a diver-

ticulum of the aorta, and thereby increases the pressure within it. Accordingly it should not be done when proximal ligation is possible.

3. The presence of the aneurism necessitates removal of a part of the sternum in order to gain a free and clear exposure of the vessels below the aneurism.

4. The ligation of the innominate artery may be safely and surely accomplished if the ligatures are tied in a stay-knot without rupturing the coats.

E. C. ROBERTS, M.D.

Beccherle, G.: A Case of Suture of the Common Carotid for Late Hemorrhage Following a Hand-Grenade Injury of the Vascular Wall (Su di un caso di sutura dell'arteria carotide comune per emorragia tardiva in seguito a ferita della parete del vaso da scheggia di bomba a mano). *Paliolin.*, Rome, 1922, xxix, sez. chir., 81.

In the case reported the fragment of the hand-grenade causing the injury remained in the vessel wall and acted as a tampon until it was displaced by movement of the patient or some other mechanical force. It was only at this later stage, after its displacement, that the endovascular pressure caused hemorrhage by overcoming the weak resistance of the remaining tissues.

The patient was in a condition of acute anemia from loss of blood and his pulse was almost imperceptible. Temporary pressure hemostasis of the vessel was obtained without excessive injury to the vascular tunics. When the hemorrhage had been considerably diminished, the tract of the external wound was opened up. The fragment of projectile was discovered fixed in the common carotid about 1½ cm. from its bifurcation. A Kocher forceps was placed over the bifurcation, the perivascular coagulum removed, and the arterial perforation, a longitudinal tear about 3 mm. long with clean and regular edges, was exposed. The necessary material not being at hand for complete suture of all of the vascular coats, the edges of the wound were approximated and the external and middle tunics sutured. The result was entirely satisfactory.

In injuries of the arterial walls of limited extent this type of suturing, if well done so as to obtain perfect approximation of the endothelial surfaces, gives the best results. W. A. BRENNAN.

SURGICAL DIAGNOSIS, PATHOLOGY, AND THERAPEUTICS

Brennan, J.: The Clinical Significance of Abdominal Pain in Children. *Surg., Gynec. & Obst.*, 1922, xxxiv, 344.

Certain abdominal pains, such as those of chronic gastritis, gastric ulcer, biliary colic, and renal colic, which are common in adults, are rare or unknown in childhood. Some forms of abdominal pain have the same characteristics at all ages. Pain occurring predominantly in infancy and early childhood is nearly always caused by obstruction in a hollow

peritoneal viscera. Other pains which manifest themselves differently in adults are more difficult to diagnose. The author confines himself to the last two groups.

Colic is the most frequent and the easiest pain to diagnose. It occurs usually at the age of 3 months when other pains are infrequent. It is sudden and paroxysmal in onset and comes on at the same time each day. It is ameliorated by pressure and enemas. Babies with chronic indigestion cry a great deal, although the pain is not as severe and the condition is accompanied by diarrhea. Pyloric stenosis is usually not associated with much pain, and there is other evidence which renders this condition easy to diagnose.

The most frequent cause of intestinal obstruction is intussusception. This is rare in earliest infancy and after the third year. The pain is not as severe as that of other conditions and shock is seldom present. A rise of temperature occurs, however, and the patient is definitely toxic. Blood and mucus intimately mixed are passed without feces. The stool of dysentery contains blood and mucus which are not mixed. A careful search should be made for a sausage-shaped tumor. After rectal examination a thin, reddish-gray jelly-like substance will follow the retracting finger. Intestinal obstruction due to volvulus or a band of adhesions is a much rarer condition in infancy.

Abdominal pain may be caused by an unusually tight anal sphincter. The author cites two cases which were entirely relieved by gradual dilatation.

Three types of abdominal pain occurring in older children, rather than in infants or adults, are: (1) "green apple colic," (2) the referred pain of pneumonia, and (3) pain associated with throat infections. The diagnosis of the first as a rule offers no difficulty since the pain follows the ingestion of such foods as unripe fruits, cucumbers, and peanuts. The pain associated with pneumonia is often difficult to diagnose as it may be present long before there is clinical evidence of pulmonary consolidation. Frequently the X-ray is the only means by which the disease in the chest can be discovered. The abdominal pain of throat infections is of more common occurrence than is generally believed. It is paroxysmal in nature, recurrent, usually located at the umbilicus, and much greater than the tenderness. The latter is not as definite as that in appendicitis.

Mention is made also of abdominal pain due to inflamed mesenteric nodes. The route of infection may be systemic or local from the intestines. When systemic, these infections may cause general peritonitis, especially in infants. The picture of general peritonitis is not difficult to recognize.

Tuberculous peritonitis is usually found in older children, and may be recognized by its insidious onset, the slight rise in the temperature, the presence of fluid, a positive von Pirquet test, etc. Obstruction due to adhesions may occur later. Abdominal pain due to pressure on the posterior nerve roots in tuberculous spondylitis is not difficult

to recognize as spinal rigidity and tenderness are present before the pain develops.

In appendicitis in children pain is always a symptom, and probably always the first, but may be slight. In the author's experience it is quite rare in young infants, and in older children does not differ greatly from that of appendicitis in the adult, except that it is not as marked.

WILLIAM J. PICKETT, M.D.

Kotzareff, A.: Burns and Their Treatment; An Experimental, Anatomico-Pathologic, and Clinical Study (Les brûlures et leur traitement: travail expérimental, anatomopathologique et clinique). *Rev. de chir.*, Par., 1922, xli, 6.

In order to test the theory that the fatalities in cases of burns are due to intoxication combined with nervous shock as suggested by Askanazy of Geneva, the author carried out a series of animal experiments and a series of clinical trials of serum treatment of hospital patients. All the findings clearly demonstrate that the only sustainable theory is that a toxemia is produced in burns.

A reaction of the blood or the lymphohæmatopoietic system manifested by eosinophilia is not characteristic of burns alone, but is observed in every intoxication due to the destruction of tissues.

The experiments show also that a burn may be fatal even when the nerve reflex or nervous shock and the alteration of the blood are overcome. The nerve shock may be prevented by the induction of general or local anæsthesia or by section of the nerves of the burned area. Alterations of the blood or the formation of thromboses may be prevented by ligation of the vessels of the burnt areas.

The toxins pass by the blood capillaries or lymphatics and are arrested in the lungs where a mass of eosinophiles is seen. If death occurs within twelve or twenty-four hours after the accident the blood drawn during the first twelve hours shows an increase of eosinophile polynuclears. After twenty-four hours the number decreases. The same thing is seen in lung sections of guinea pigs or men dying within twenty-four hours of the accident. The rapid intoxication does not give the organism time to react.

Passive immunization by vaccination or auto-immunization by the injection of blood or serum of an intoxicated animal increases the chances of survival. The organism reacts as always by the production of antitoxins. If the quantity of toxins is greater than that of antitoxins the patient dies intoxicated, but if the opposite is true he survives. The life of an animal intoxicated to the degree of toxæmic shock may be saved if there is time to inject sufficient antitoxin to neutralize the toxins.

Serotherapy is therefore indicated in cases of burns if the injection of serum can be made very rapidly so as to prevent the action of the toxins. Repeated injections of the serum of a burned animal causes gradual disappearance of the symptoms of toxæmic shock.

Despite the injection of serum, the general treatment of burns by the subcutaneous injection of physiological serum or the withdrawal of small quantities of blood to diminish the toxæmia and the administration of heart stimulants is indicated. It must not be forgotten, moreover, that burns cause a disturbance in the equilibrium of the blood. This early disturbance, which is characteristic of toxæmic shock, favors the rapid development of infective complications. Therefore as soon as the serum injection is made the possibility of rapid and early infection should be guarded against. W. A. BRENNAN.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Walther, H.: The Influence of Epididymectomy on the Prostate (Experimental Research) (*Ueber den Einfluss der Epididymektomie auf die Prostata; Experimentelle Untersuchungen*). *Ztschr. f. urol. Chir.*, 1921, viii, 87.

Having observed that following the removal of the tuberculous epididymis the tuberculous area in the prostate usually became reduced spontaneously and that the gland on the side of the operation became smaller, Walther sought to determine the influence of epididymectomy on the prostate by experiments on rabbits.

The influence of "sexual operations" on the prostate in man has as yet yielded no decisive results. It is known that castration on both sides previous to the approach of puberty leads to a high degree of atrophy of the gland which first affects the glandular portions and later the fibromuscular tissue. As regards the influence of castration in older people, opinions vary widely, especially with regard to unilateral castration. Neither have we definite knowledge as to the effect of interruption of the spermatic cord on atrophy of the prostate. Experiments on animals showed that in spite of extreme atrophy of both testicles the prostate remained uninfluenced. For the atrophy of the prostate, especially following unilateral operation, the following causes must be taken into account: (1) shrinkage due to disturbance of innervation (anastomosis between the prostatic and deferential plexus); (2) the absence of the internal secretion of the testicles following bilateral operation; (3) the cessation of the functional activity of the involved half of the prostate due to interruption of the flow of semen. Also the degree of fullness of the seminal vesicle may have some influence on the activity of the prostate.

The operations were performed on animals under morphine anesthesia. The author discusses briefly the normal anatomy and histology of the internal genitalia of male rabbits. Following unilateral castration or epididymectomy the two halves of the prostate showed no marked macroscopic difference. Following bilateral castration in the young they wasted away so decidedly that they were often difficult to discover with the naked eye. In animals of sexual maturity they maintained their normal size.

Microscopic examination in the cases of animals castrated on both sides showed fusion of the glandular epithelium of the prostate into irregular, disorderly accumulations of cells almost devoid of protoplasm, nuclei well stained but irregularly arranged, and the absence of giant cells. Following unilateral castration of animals there was no deviation from the normal. The results of unilateral epididymectomy were the same. The experiments therefore contributed nothing to explain why, in man, unilateral atrophy of the prostate may follow the removal of an epididymis or testicle. BERNARD (Z).

Halsted, W. S.: Blind-End Circular Suture of the Intestine, Closed Ends Abutted, and the Double Diaphragm Punctured with a Knife Introduced per Rectum. *Ann. Surg.*, 1922, lxxv, 356.

The object of this series of experiments was to develop an end-to-end suture of the intestine more nearly aseptic than had yet been devised. The first few experiments on blind-end suture were reported last year. Since that time the idea of dividing the pursestring ligatures, or at least puncturing the diaphragm, with a protected cautery, knife, or knives introduced per rectum developed. One knife proved to be better than three or four because less force was necessary to cut the ligatures or perforate the diaphragms, and one of three or four knives might enter the mucosa of the intestine.

The method is essentially as follows: (1) ligation and division of vessels and mesentery; (2) a finely basted pursestring stitch of silk is run around the proximal and distal portions of the healthy gut and a half-knot taken in each; (3) strong threads are tied around the proximal and distal portions of the gut to be removed; (4) division of the bowel with the cautery; (5) tightening of the pursestring sutures and clipping of any overhangs or tags; (6) suturing of the ends of the intestine with a single row of mattress sutures; (7) the introduction through the rectum by an assistant of the instrument by which the pursestring sutures are to be cut (a short rubber tube being placed in the sphincter and rectum to facilitate its introduction and protect the sphincter, and the knife point being protected by cork); (8) propulsion of the knife by the assistant to the required point by manipulation of the flexible metal tail (the knife will glide to the ileocecal valve with no more force than is necessary to pass a stomach tube); (9) the removal of the cork by the operator from the tip of the knife by manipulation through the intestinal wall; (10) operator grasps the metal tubing close to the shank of the blade, and aims for the center of the diaphragm, hoping to cut both purse-strings (two or three thrusts are made); (11) as a precautionary measure a tapered bougie is passed through the diaphragm before closure of the wound.

By this method forty-seven dogs were operated on without a fatality or symptoms of abnormal convalescence. The bowel resected in every instance

was the colon. No previous series of experiments in intestinal suturing at Halsted's laboratory had been run on more than twenty-three dogs without a death. This is therefore the longest series he knows of, there or elsewhere.

The amount of soiling is reduced to the minimum, and the amount of intumescence to a constant. The stitches are subcutaneous, as such stitches will ultimately become subperitoneal loops long before the diaphragm has unfolded. Perforating stitches usually ulcerate their way into the gut, in the track of all these stitches there has been an infected sinus from the time of placement to the time of release. Halsted is convinced that in cases which heal most ideally the stitches come to the peritoneal surface, and only those which penetrate the mucosa slough to the inside of the gut.

The original paper of Lembert shows that his stitches were cast off into the bowel, and he makes no mention of ever having seen at autopsy a loop of thread shimmering under the peritoneum. He states definitely that his stitches were perforating stitches. This shows that the Lembert stitch has been universally misunderstood.

It is not known how deep the intumescence should be, but it may be assumed that the deeper the better, provided obstruction is not produced. The apposed serous surfaces of the diaphragm tend to remain firmly in contact. Every perforating stitch is a menace to the circulation. In the dog one row of mattress stitches has given perfect results; whether the human colon would require more, Halsted is not prepared to say. The more perfect the execution of any method of end-to-end anastomosis, the less the reaction about the line of suture and the greater the rapidity of the unfolding of the intumescence and the complete restoration of the lumen of the bowel. Great reaction causing matting of the omentum and intestines about the line of suture may lead to the formation of fibrous tissue in the infiltrated intestinal wall so dense and so extensive as to delay for a long time and possibly prevent permanently the complete unfolding of the intumescence.

The opportunity has not as yet been presented to perform the blind-end suture on the human subject. The knife passes readily to the ileocecal valve in the dog, and in one instance after resection of the cecum the abutted closed ends of the ileum and ascending colon were cut with the knife with normal recovery of the dog. With the splenic flexure hooked high, it might be difficult to traverse with the knife, but for resections of the descending colon, the sigmoid flexure, and the rectum when the sphincter is to be preserved, and possibly of the gastric end of the esophagus, the method is worthy of a trial.

O. S. PROCTOR, M.D.

Cannon, W. B., and Cattell, M.: Studies in Experimental Traumatic Shock: The Critical Level in a Falling Blood Pressure. *Arch. Surg.*, 1929, 49, 500.

The low blood pressure in both experimental and clinical shock is explained by a diminution of

blood volume, an actual decrease in the amount of fluid in circulation. In the early stages of secondary shock, however, the diminished volume may not be associated with a reduced arterial pressure. When the amount of circulating fluid is decreased the pressure can be maintained only if there is a decrease in the capacity of the circulatory system. Such a decrease in capacity is effected by increased action of the vasoconstrictor center causing greater contraction of the peripheral vessels. When the blood pressure begins to fall there may be also passive contraction of these vessels because they are no longer distended by the internal pressure which normally prevails. With the further development of shock there is a fall of arterial pressure below the limits of normal variation due to a reduction of the blood volume below the minimal capacity of the system and a final relaxation of vascular tone as the vasomotor system becomes less active.

Because of a primary vasoconstriction, a decrease in the blood volume results in a decrease in the blood supply to peripheral tissues, and because of a slower flow a lessening of the blood pressure results in a decrease in the blood supply to peripheral tissues and central organs. All parts of the body may then begin to suffer from disturbances of the circulation initiated by the decrease in the volume of blood and continued as the volume becomes less and less.

In forty-five coincident determinations of blood pressure and carbon dioxide capacity, a rough relation between the two was found; in general, the lower the blood pressure, the lower the alkali reserve.

If uniform artificial respiration is given to an animal while it is passing into the state of shock, no diminution of the carbon dioxide capacity of the plasma occurs until the blood pressure falls. The concomitant fall of blood pressure and reserve alkali in shock should not be regarded as indicating that a cause of shock is to be found in the lessened alkali content of the blood.

On the other hand, whatever the cause of the reduction of the alkali reserve—the excessive production of acid or overbreathing due to oxygen want—the decrease is an indication of a fundamental difficulty, insufficiency of the oxygen supply. Insufficiency of the oxygen supply to the brain is apt to exert a profound effect upon the metabolism of nerve cells in particular and to lead to a disturbance of nerve function. It becomes a matter of importance, therefore, to know at what point in impairment of the circulation the oxygen delivery to the organs becomes inadequate.

EXPERIMENTAL DETERMINATION OF THE CRITICAL LEVEL

In order to produce experimental conditions which would be as closely as possible analogous to those of shock while preserving the possibility of controlling these conditions accurately, the authors have made use of an arrangement to record the volume changes of the heart. Under artificial

respiration, the thorax was opened between the ribs on one side at the level of the lower end of the sternum. A small slit was cut in the pericardium and a glass cannula tied in place. The thorax was then tightly closed and the animal allowed to breathe naturally. A small funnel was connected with the cannula by means of rubber tubing and filled with physiological sodium chloride solution or 6 per cent acacia in physiological sodium chloride solution. The pressure of the column of fluid was transmitted to the outside of the heart in the pericardial sac and thus affected directly the filling of the organ and its output. By raising or lowering the funnel, any desired arterial pressure could be produced and maintained. In a few experiments the arterial pressure was regulated by compression of the heart by means of a clamp applied to the chest. This method gave similar results, but was inferior in that it interfered with the respiratory movements.

Most of the experiments were performed on cats, but in a few cases rabbits and dogs were used. Ether was found to be a satisfactory anæsthetic as preliminary observations showed that under the conditions of the experiments it had no effect on the alkali reserve. A cannula having been placed in the pericardium to control the arterial pressure as described, the blood pressure was recorded by a mercury manometer connected with one carotid artery. A second cannula was placed in the other carotid artery or in the femoral artery to obtain samples for the bicarbonate determinations. For each determination, about 3 c.cm. of blood were centrifugalized in a graduated tube and the alkali reserve of the plasma was determined by the Van Slyke method. A sample of blood was usually taken immediately before the blood pressure was reduced and at intervals of an hour throughout the course of the experiment. As a rule no difficulty was experienced in keeping a constant arterial pressure at any desired level. Sometimes just after the pressure was reduced it was necessary to adjust the funnel repeatedly to hold the arterial pressure constant, but usually an equilibrium was reached in a short time. The results of a few experiments, however, were discarded on account of irregularities in pressure.

Throughout the whole series of observations a satisfactorily constant relation was found between the degree of reduction of the alkali reserve and the lowering of the blood pressure. The most marked reduction was found at low pressures, whereas above 80 mm. of mercury the state of the blood remained unchanged. These differences are shown by a few illustrative protocols.

An examination of the data demonstrates a normal bicarbonate reserve in the cat from 30 to 25, the average being about 32. This is a much lower figure than that found in normal human plasma in which a reading below 50 is generally considered pathologic. The most rapid fall in the alkali reserve occurred during the first hour of reduced pressure, after which it soon reached a stationary low

level. In a few cases there was recovery after several hours.

The alkali reduction produced by an inadequate circulation was not permanent, but rapidly disappeared when the blood pressure was allowed to return to normal. In a number of other instances the blood pressure was raised and the alkali reserve was restored by the injection of gum-salt solution.

It seems probable that when hæmorrhage complicates a low blood pressure the critical level is higher than when there is no loss of blood.

From the experimental results the authors conclude that the critical level, that is, the level at which the blood pressure is no longer capable of maintaining an adequate volume-flow to the tissues and thus serving the normal oxidations of the body, is approximately 80 mm. of mercury. If there has been a loss of blood the circulation becomes inadequate before the pressure falls to 80 mm. of mercury, i.e., the critical level is raised.

EFFECT OF MORPHINE

Morphine keeps the volume percentage of carbon dioxide high even when the blood pressure has been kept reduced to 60 mm. of mercury for three hours. The explanation of this conserving influence is still obscure. Possibly, by reducing the activity of tissues, the morphine lessens their demand for oxygen and thus compensates for the smaller supply of oxygen in the sluggish blood flow.

The most reasonable explanation to account for the failure of the pressure to rise after persistence at the low level is that the nervous agencies which control the circulation have suffered an injury due to the inadequacy of the circulation. The reasonableness of this hypothesis is supported by observations on relaxation of vascular tone in late shock and by tests of the response of the vasomotor center to stimulation by asphyxia.

Experiments have proved definitely that when there is an acute lack of oxygen, nerve cells abruptly cease to function. The loss of consciousness in fainting is a common example of the close dependence of nervous elements on a continuous oxygen supply. The experimental and clinical observations on the effects of prolonged low pressure point to the fact that these sensitive cells may be gradually harmed if, instead of acute anæmia, there is prolonged partial anæmia.

The gradually damaging effect of persistent low blood pressure is of the utmost importance in both the understanding and the treatment of shock. When the vasomotor center has lost its capacity to maintain vascular tone there is no remedial agent which can be applied to bring the blood flow back to its normal condition. When a man has been in a state of shock for a long time so that the vasomotor center fails to hold the blood vessels in a state of moderate contraction he reacts in much the same manner as the experimental animal does when the bulbar centers are destroyed. Transfusion has only a transitory beneficial effect. When this stage has

been reached, the secondary harm from insufficiency of oxygen has been too great to permit resuscitation.

The foregoing considerations emphasize the prime importance of the early treatment of the low blood pressure of shock. Through the tissues may not suffer until the pressure has fallen below a critical level of approximately 50 mm. of mercury, it is desirable, when the pressure has fallen below this level and shows no evidence of rising, to raise it to the normal level of 100 mm. of mercury, if possible, in order to provide the most favorable conditions for the repair of the damage which has been done.

The article contains thirteen tables and three figures.

CARL R. STEINKE.

ROENTGENOLOGY AND RADIUM THERAPY

Morgan, J. D.: Stereofluoroscopy. *Am. J. Roent.* genol., 1922, N.S. 12, 180.

Two X-ray tubes, with targets placed several inches apart, are alternately excited. These short alternating flashes produce different images on the fluorescent screen corresponding to the difference in position of the tube targets. Because of the persistence of each image in the eye, the result is a confused mixture of the two images. If a shutter is placed in front of the eyes and so arranged as to permit the eyes to see the screen alternately in synchronism with the flashes of the two tubes, each eye will see but one image but the observer will be conscious of a continuous stereoscopic effect.

Various attempts have been made to perfect apparatus for stereofluoroscopy. The author describes the contrivances of Mackenzie Davidson, Pirie, Caldwell, Williams, Wilson and McDonald, Hock, and Tyndall and Hill. These gave the desired results, but all of them had some objectionable feature which rendered impracticable their every-day use by the average operator.

The apparatus which the author devised with McDonald differs essentially from other types in that the shutter has a vibrating instead of a rotating movement. The vibrating member is placed between two specially made electromagnets, and only enough force is applied to overcome inertia and air friction. Two Coolidge tubes are used, both activated by the same transformer.

Further advantages of this apparatus are: (1) its small size and lightness (it weighs only 12 oz.); (2) it can be strapped to the forehead like a head-mirror, the operator's hands therefore being left free; (3) when not in use it can be pushed up from in front of the eyes without removing it from the forehead; (4) it can be fitted with an "operating fluoroscope," which renders it possible to operate in a fully lighted room; (5) it can be used equally well in any position without losing synchronism; (6) a number of observers, each with a shutter, can "plug in" to view the shadows stereoscopically as they appear on the common fluorescent screen.

ADOLPH HARTUNG, M.D.

Pfahler, G. E.: A New Technique for the Vertical Examination of the Sphenoids and Ethmoids, with Demonstration of a Special Sphenoid Film Holder. *Am. J. Roentgenol.*, 1922, N.S. 12, 185.

With the object of bringing the films nearer the sphenoid and ethmoid cells to be photographed the author has devised a method of placing a special film in the mouth and pushing it backward firmly against the pharynx. This gives a definite level for the projection of the outlines of these sinuses and eliminates most of the irregular extraneous shadows of overlying bones. There is then above this film only the base of the skull, and in this small area are obtained practically only the outlines of the sphenoid sinuses and the ethmoid cells surrounded by a border of teeth in the upper jaw.

The film used is 2 by 3 in. in size, square at one end and rounded at the end which is pushed against the pharynx. It is placed between double screens attached to hinged plates, the top one aluminum, the bottom one brass. This holder is enclosed in a special black envelope which in turn is covered with rubber to render it waterproof. The examination is made with the patient in the sitting position, the chin resting upon a headrest. The rays are directed downward from the vertex and slightly forward to pass through the sphenoids toward the film.

By this technique the outline and size of the sphenoid sinuses projected side by side may be demonstrated and this gives the operating surgeon a definite idea as to the position of the septum which in many instances is distinctly to the right or the left of the median line. By this process one can demonstrate also a horizontal projection, or in horizontal section, the ethmoid cells. At times, large ethmoid cells in the region of the sphenoids are involved by exudate which, by all other means, suggests disease of the sphenoids. With the definite demonstration of the location of exudate by this method, or even the demonstration that these various cells are normal, a great advance can be made in the study and treatment of the diseases of the posterior accessory sinuses.

By this method surprisingly great variations in the outline of the sphenoid sinuses as well as in the size and outline of some of the posterior ethmoid cells have been demonstrated. It is rare that the two sphenoid sinuses are of equal size and it is very common to find the septum on one or the other side of the median line. This technique combined with the postero-anterior and the lateral views permits a very exact and definite demonstration of the sphenoid sinuses in every plane and in every direction, and therefore furnishes the most exact information for the clinician.

ADOLPH HARTUNG, M.D.

Van Zwaluwenburg, J. G.: Pelycography — Its Field and Its Limitations. *J. Radiol.*, 1920, 13, 74.

In this article the term "pelycography" is suggested to designate the X-ray examination of the pelvis by the pneumoperitoneum method. The

arguments for and against the procedure and its possible ill results are discussed at length. The impression is given that if it is skillfully used these dangers are not serious.

In 130 cases examined the intra-uterine route was preferred. When the attempt to inflate by this route failed or there were contra-indications, there was no hesitation in attacking the abdominal wall.

In roentgenography the tube-below-the-table technique was wholly abandoned for the tube above the table. The visualization of the uterus depends largely on the inclination to the horizontal, and this varies greatly with individuals. The urinary bladder must be empty.

In complicated cases of advanced pregnancy the method has little value, but the demonstration of a dermoid cyst and of a pelvic abscess in the presence of a normal pregnancy was accomplished with no harm to the patient. The demonstration of normal pregnancy is least difficult between the sixth and sixteenth weeks, the enlargement before then being too small and later too great for demonstration.

In ectopic pregnancy the secondary changes which ensue so rapidly lead to confusion in interpretation, but twice the author has been able to identify a supposed ectopic pregnancy as a normal pregnancy complicated by an extra-uterine condition. The demonstration of tuberculous salpingitis has been made twice when unsupported by clinical findings. The method has been especially satisfactory in its negative results in the cases of neurotic young women suffering from dysmenorrhœa without palpatory findings. The "pelycogram" is singularly sensitive to relatively slight changes in the morphology and relationship of the pelvic organs. Minor changes in the size of the ovaries, adhesions, fixations, and traction distortions are all shown in striking contrast to the normal.

The author believes that it is fairly safe to conclude that the pelvis which appears normal to the experienced roentgenologist is in fact without significant pathology.

DAVID R. BOWEN, M.D.

Mallet, L., and Collez, R.: Radiologic Diagnosis of Tumors of the Left Hypochondrium (*Diagnostic radiologique des tumeurs de l'hypocondre gauche*). *J. de radiol. et d'électrol.*, 1922, vi, 57.

The authors state that artificial pneumoperitoneum seems to be of particular value in the diagnosis of affections of the left half of the abdomen.

The presence of gas in the peritoneal cavity causes a general descent of the viscera which varies according to the position of the patient. By changing the patient's position the best position for the exploration of a particular organ can be found.

Three positions of the patient are especially important in making a complete examination of the left hypochondrium under pneumoperitoneum:

1. Ventral decubitus with the ampulla beneath the table and the screen against the patient's back.
2. Right lateral decubitus with a horizontal normal and ventro-dorsal or dorso-ventral ray.

This position is especially good when the patient bends laterally in front or behind at about 45 degrees to the table.

3. Dorsal decubitus with a normal horizontal and latero-lateral ray.

The authors give the normal findings in these various positions and report nine cases of various conditions which show to what extent the pathologic X-ray findings in the positions referred to deviate from them. The cases include tuberculous peritonitis localized in the left hypochondrium, tumor of the left side of the transverse colon, polycystic kidney, and gastric tumor.

W. A. BRENNAN.

Hazen, H. A.: The Ultraviolet Ray in the Treatment of Roentgen-Ray Telangiectasia. *Am. J. Roentgenol.*, 1922, n. 9, ix, 101.

The well-known effect of the ultraviolet lamp in producing an obliterating endarteritis led the author to the employment of the Kromayer lamp to clear up telangiectases produced by radiotherapy. Up to the present time eight lesions have been treated. Three were comparatively small telangiectases due to radium plaques, two were large areas covering the entire thyroid and thymus areas, and the remainder were mild scattered lesions due to one erythema dose given for acne.

With an active lamp, using a quartz compression lens, it was found necessary to treat each area from fifteen to twenty minutes. In no instance were more than two treatments necessary to obliterate the dilated vessels completely. The atrophy of the skin was unchanged and usually a small, slightly whitened scar remained.

ADOLPH HARTUNG, M.D.

Murphy, J. B., Liu, J. H., and Sturm, E.: Studies on X-Ray Effects: The Action of Serum from X-Rayed Animals on Lymphoid Cells in Vitro. *J. Exper. M.*, 1922, xxxv, 373.

In the course of an investigation on the biological effects of roentgen rays it was noted that while large doses of this agent destroyed lymphoid tissue, very small exposures, after causing a slight amount of destruction, caused a stimulation of this tissue. The mechanism of the stimulation phenomenon is of considerable interest because of the relation of the lymphoid tissue to cancer resistance. The most satisfactory stimulation has been obtained with roentgen rays of comparatively long wave-lengths and of low penetrating power. It seemed extremely doubtful, therefore, whether these rays penetrated to the deeper lymphoid organs in sufficient strength to bring about any change; yet these organs showed as much evidence of stimulation or destruction as those which were superficial enough to be acted upon by the rays directly. This observation led to a consideration of the possibility that the spleen and lymph-gland changes were secondary to some alteration in the circulating blood or other tissues brought about by the action of the roentgen rays. With the evidence

at hand indicating the indirect action of the roentgen rays on the lymphoid tissue, it seemed of interest to reopen the question and to determine whether or not the serum of roentgen-rayed animals has any effect on lymphoid cells in vitro.

With this end in view a series of experiments were performed on young rats. The technique followed and the results obtained are described in detail. The findings are summarized as follows:

Lymphoid cells prepared from the thymus and lymph glands of rats, when suspended in the serum of roentgen-rayed rats and incubated for two hours, increase in number from 15 to 40 per cent, and mitotic figures are found among these cells in fairly large numbers. This occurs when the dosage is governed by the following factors: spark gap, 2½ in.; milliamperes, 10; distance, 12 in.; time, fourteen minutes. When the time of exposure is increased to an hour, the other factors remaining the same, it is found that there is no evidence of a stimulating effect and no more rapid disintegration of the cells than in the normal serum. A like suspension of cells in normal serum undergoes rapid disintegration and in only one instance among a large number of films examined was a mitotic figure found.

The stimulative effect of the serum from roentgen-rayed rats persists from one to two hours after the exposure but is not detectable in the serum taken seventeen hours or later after the treatment. Serum roentgen-rayed in vitro is devoid of stimulative action.

The lymphoid cells of rabbits and guinea pigs are so fragile as to make it impossible to obtain counts sufficiently accurate for experimental purposes. The serum of one species caused such rapid disintegration of the cells of another that it was impossible to determine the specificity of the reaction.

ANDREW HARRISON, M.D.

Boggs, R. H.: The Treatment of Glandular Metastases of Carcinoma. *Am J Roentgenol*, 1922, 2: 311-317.

The three most important factors to be considered in the treatment of metastatic glands are: (1) the situation, extent, and depth of the disease; (2) the amount of cross-firing necessary to make up for the loss of energy due to divergence and absorption of the rays in the tissues; and (3) the ratio between the erythema and lethal dose in malignancy.

It is known what glands are usually first involved by metastasis in carcinoma of the various organs of the body, and a chart can be made showing the exact location of the lymphatic vessels and glands. The extent of involvement usually depends on the stage of the disease, but there is no method by which it is possible to determine whether metastases have formed in a lymphatic chain or not. The size of the lesion and its duration are not dependable factors upon which to base the prognosis or determine the extent of metastasis. When the glands of one lymphatic chain are palpably enlarged, the next chain is nearly always microscopically involved. The

regularity with which the lymphatic nodes are involved at some stage of carcinoma makes it imperative to radiate all the lymphatic system adjacent to a primary growth. In some cases the first chain of glands is not involved, but glands further distant may contain cancer cells. The aim of treatment in every case of carcinoma is to check cell proliferation and destroy all infected cells by radium and the roentgen ray, not only in the primary growth, but also in the lymphatic system, as soon as possible.

The intimate relation between carcinoma and the lymphatics has been carefully studied, and it is essential that radiologists should know the modes of extension and paths of dissemination. By continuous extension of cancer cells of the primary infiltrating tumor through the lymphatics, metastasis appears at points widely distant from the original growth. The frequency of lymphatic metastasis varies with different types of tumors and with different locations of the same kind of tumors. The author describes the paths of extension in certain localities in detail.

There is no universal method of raying metastatic glands. Some therapists radiate large areas with very little cross-firing, some cross-fire from every possible angle, using small ports of entry, some embed radium, others use large quantities of radium placed on a pack covering a large skin area, while still others use a combination or a modification of these methods. There is wide variation in filtration, spark gap, tube distance, and time of exposure in roentgenotherapy just as there is a wide variation in the methods of applying radium. All have the same object, viz., to give a lethal dose to all the glands which are involved by metastases.

Up to last year the method of treating deep metastatic glands by the roentgen ray consisted in using many ports of entry and cross-firing as much as possible. The equation ordinarily employed was a 9-in. spark gap, 5 ma., 8-in. tube distance, filtration through from 4 to 10 mm. of aluminum, and exposure of from seven to thirty minutes depending upon the rest of the equation. After the lethal dose was determined the number of ports of entry was figured out. About a year ago it was learned that the Germans were employing very large ports of entry, higher voltage, more filtration, and a greater tube distance. They claim that by the use of larger ports of entry, more scattered or secondary radiation is obtained.

The embedding of radium has many points of advantage in the treatment of carcinomatous growths as well as of glands involved by metastasis and is particularly valuable following surface applications in malignancy of the mouth and throat. It should always be preceded and followed by surface raying. It is valuable as an ante-operative procedure.

There are many methods by which primary carcinoma can be successfully treated, but there is no positive method by which extensive metastases can be eradicated or cured. Radiation is the only

procedure which offers anything when more than one chain of lymphatics are involved even microscopically. In the treatment of metastases in glands the most efficient method is the one by which the largest amount of radiation will reach all cancerous cells with the least injury to the skin and overlying structures.

ADOLPH HARTUNG, M.D.

Van Allen, H. W.: Hyperthyroidism, Basal Metabolism, and Radiography. *J. Radiol.*, 1922, iii, 83.

Van Allen believes that the lesser symptoms of hyperthyroidism are often underestimated, that in such cases the basal metabolism test is of the greatest value, and that, properly interpreted, the test is reliable negatively as well as positively. Laboratory tests are practical, provided there is suitable provision for the required rest. In certain cases, if circumstances are favorable, it may be best to examine the patient at his home. In many instances the longer stay in a hospital is disturbing and counteracts any advantage the hospital may have as compared with the independent laboratory.

Careful observation of the pulse obviates the need for repeated metabolism tests during treatment. In the majority of cases Van Allen makes no test until a month after the last treatment. The fractional X-ray dose is used: $3\frac{1}{2}$ ma., fifteen minutes, a $4\frac{1}{4}$ -mm. aluminum filter, an $8\frac{1}{2}$ -in. spark gap and 16-in. distance. Six treatments (both sides of the neck at each treatment) are given twice a week.

This technique causes less disturbance, gives more permanent results, and is less apt to produce a skin reaction than the usual technique. During a period of fifteen years a few cases have been treated again. None of the patients has myxedema, and there have been no deaths.

DAVID R. BOWEN, M.D.

Jones, H. M.: The Control of X-Ray Therapy in Hyperthyroidism by the Basal Metabolism Test. *J. Radiol.*, 1922, iii, 85.

Following a general consideration of basal metabolism in theory and practice as a diagnostic procedure, a table is given of the conditions causing an increase or a decrease in metabolism, and cases are cited in which hyperthyroidism was demonstrated when hypothyroidism had been suspected. Stress is laid upon the necessity in any case of considering all of the possible causes, or combination of causes, of a disturbance of metabolism.

The test is of most value in the borderline cases of hyperthyroidism, and while one seldom requires it to recognize the more advanced cases, it is most often in such cases that it is necessary to determine how the disease responds to treatment by the X-ray, rest in bed, ligation, and thyroidectomy, and to indicate which form of treatment is the best to employ at the outset.

That the secretion of the thyroid gland may be diminished by X-ray treatment is no longer questioned. Normal individuals who have been regarded erroneously as affected with hyperthyroidism have been rendered victims of hypothyroidism by single

moderate doses, and even persons with extremely toxic hyperthyroidism have developed hypothyroidism following repeated massive doses. The question of successful treatment, therefore, is one of correct dosage.

The author's conclusions are summarized as follows:

The value of a given method of treatment is proportional to its effect in suppressing hypersecretion. The value of a given method of treatment in suppressing hypersecretion may be shown by following its effect on the metabolic rate. The favorable reports of hundreds of investigators show that the roentgen ray has a curative effect in hyperthyroidism. Its value depends, just as does that of the surgical treatment of the same condition, upon the technique used and the previous experience and judgment of the operator. The most important uses are: (1) the treatment of cases showing minor degrees of toxicity, and (2) the reduction of the extreme toxicity in the more severe cases preliminary to surgical removal of the gland.

Improper dosage is to be avoided. Proper dosage cannot be learned by the operator without the aid of some accurate measure of the results obtained in each case. The most accurate measure of results yet discovered is the metabolic rate.

DAVID R. BOWEN, M.D.

Kahn, M.: X-Ray Studies of Mediastinal Shadows with Special Reference to Dermoid Cyst. *J. Radiol.*, 1922, iii, 93.

Following a general consideration of mediastinal shadows, Kahn reports one case of dermoid cyst in the right chest of a female, aged 14 years, which appeared at first as a slight tumor near the sternum and increased in size rather rapidly in a period of four weeks, during which time radium was used with apparently slight benefit. Roentgenoscopic examination showed a large, rounded tumor shadow occupying the lower two-thirds of the right chest. The growth was freely movable and did not pulsate. The surrounding lung was uninvolved. The diagnosis of dermoid cyst was confirmed by operation.

The patient died from postoperative pneumonia.

DAVID R. BOWEN, M.D.

Richards, G. E.: The Possibilities of Roentgen-Ray Treatment in Cancer of the Pancreas. *Am. J. Roentgenol.*, 1922, n.s. ix, 150.

In a review of the entire literature the author has not succeeded in finding a single reference to roentgen or radium therapy in carcinoma of the pancreas, and yet if any considerable number of cases respond as have his up to the present, it is quite a possibility that this disease will be found to be more easily influenced than some other forms of carcinoma, particularly carcinoma of the gastro-intestinal tract. Cancer of the pancreas is comparatively rare but there is a discrepancy between the percentage of cases as reported by autopsy findings and in the living which suggests the need of greater

thoroughness in examination to recognize the condition early.

Detailed histories of three cases are given. All have been proven, by every possible means, to be cancer of the pancreas. In both of the patients who are still living the condition was advanced so that the expectation of life was very short—in Case 1, probably only a few weeks. In Case 2, a few months at the most. In both the immediate result of treatment was more prompt and complete than has been experienced in any other form of carcinoma. Case 3 was obviously too far advanced to offer any reasonable prospect of cure, and probably should not have been subjected to treatment. Other cases have since been treated with gratifying preliminary results, but have not been under observation for more than six months.

In every instance the results up to the present time are sufficiently encouraging to justify the following conclusions:

1. It is possible favorably to influence the growth of pancreatic cancer, and this is sufficient to justify the intensive irradiation of every case as early as the diagnosis can be established.

2. It appears probable that adenocarcinoma of the pancreas is more susceptible to irradiation than certain other forms of adenocarcinoma.

3. Efforts should be made to increase our ability to recognize the disease as early as possible.

ADOLPH HARTUNG, M.D.

Levin, I.: The Action of Radium and the X-Rays on the Blood and Blood-Forming Organs. *Am. J. Roentgenol.*, 1922, n. 5, ix, 112.

In a previous publication the author reported upon the action of roentgen rays on the blood of a turtle. This consisted essentially of a temporary increase in the proportion of polymorphonuclear leucocytes to the lymphocytes. The investigation herein reported consisted in subjecting to the action of radium and the roentgen rays normal frogs and those in which a change in the white blood cells had been induced by a preliminary injection of yeast. A similar study was undertaken also on normal rabbits.

Normal frogs treated with the roentgen rays for forty-five minutes with the use of a Coolidge tube, a 9-in. spark gap, 7 ma., an 8-in. focal distance, and no filtration showed a marked change in the numerical relationship of the polymorphonuclear leucocytes and lymphocytes, while the number of the eosinophiles and transitionals remained practically stationary. This change was most marked twenty-four hours after the radiation, and the blood usually became normal at the end of about four days.

Radium emanation tubes embedded in the dorsal lymph sacs produced similar changes which were most pronounced about three days after the insertion. Frogs in which injections of yeast had produced blood changes similar to those brought about by radiotherapy showed no further noticeable change in the blood picture after exposure to radium or the roentgen rays.

Normal rabbits treated with the roentgen rays in the same manner showed similar blood changes, but when radium emanation tubes were inserted into the spleen or the shaft of a long bone no such changes were noted. A localized necrosis and extravasation and endarteritic changes in the walls of the blood vessels surrounding the embedded tubes occurred.

The results of the analysis of the experiments of this investigation tend to confirm the prevailing opinion that the lymphocyte is the most radio-sensitive cell in the animal organism. The change in the numerical relationship of the two types of white cells was not accompanied by a noticeable change in the total leucocyte count. Apparently the mechanism of the action of the rays on the leucocytes of the blood consists in the destruction of the lymphocytes, which is followed by the release of the polymorphonuclear leucocytes from the bone marrow or an overproduction of this type of cells by the blood-forming organs.

Certain investigators maintain that the polymorphonuclear leucocytes are the blood cells most readily destroyed by the rays, but an analysis of their results shows that the destruction of the polymorphonuclear leucocytes takes place only as the final result of the action of a lethal dose of the rays which produces ultimately a severe general leucopenia. In the investigation reported in this article the amounts of radium and roentgen ray given were such that the animals could completely recover after the lapse of time and the blood picture could again become normal.

Close analysis of the experiments led to two conclusions which have a direct bearing on applied radiotherapy: (1) that radium, as compared with the roentgen rays, will produce the same and even a more marked local effect with far less general disturbance of the blood; (2) that the larger the square surface of the entry of the roentgen rays into the organism the more severe is the general effect on the blood.

In view of these facts biological conditions must be studied at least as much as the purely physical conditions before a true estimation of the correct quantity and quality of the radiations to be used in the treatment can be made.

ADOLPH HARTUNG, M.D.

GYNECOLOGY

UTERUS

Shaw, H. N.: The Results of the Interposition Operation for Prolapsed Uterus and Prolapse of the Uterus. *Surg., Gynec. & Obst.*, 1922, xxxiv, 394.

After describing the technique of the interposition operation as done on the gynecological service of the Johns Hopkins Hospital, the author reports in detail a case of extensive prolapse in which a very excellent result was obtained. Cullen's contribution to the technique of the interposition operation, as done in this clinic, is the placing of three figure-of-8 sutures on the anterior wall of the uterus so that they first act as traction sutures and, when tied, firmly anchor the uterus beneath the bladder and against the anterior plane of fascia.

Since 1900, 118 interposition operations have been done on the gynecological service of the Johns Hopkins Hospital. Of fifty-eight cases in which the final results are known the symptoms were entirely relieved in fifty and were not relieved in thirteen. Three patients have died since leaving the hospital and two died while they were in the hospital. Two patients became pregnant after the operation.

The author admits that the indications for the interposition operation were not closely adhered to in their earlier operations; hence the poor results obtained. Since 1915, however, they have done forty interposition operations, and in twenty-one of these cases which have been traced the result was satisfactory.

In conclusion Shaw says that the operation is limited to a small group of cases of women near or past the menopause in which abdominal or other extensive operative procedures are contra-indicated.

HARVEY B. MATTHEWS, M.D.

Phillips, J.: Severe Uterine Haemorrhage After Vaginal Operations. *Lancet*, 1922, cclii, 530.

The author cites the case of a primipara, 24 years old, who was delivered with forceps with a resulting complete laceration. Sutures were inserted, but union did not follow. Fourteen days later, and a few hours after the medical attendant had inserted silk worm gut sutures, violent haemorrhage occurred from the uterus which was much distended with blood and reached to the level of the umbilicus. Grave symptoms of shock developed. A few weeks later the author repaired the perineal tear. Good union resulted and there was no postoperative haemorrhage. Fifteen years later the patient showed signs of Grave's disease, a rapid pulse, loss of flesh, and the characteristic blood changes. After four years of treatment she recovered and today is in good health.

The author has never before observed a case of ballooning of the uterus as the result of a vaginal operation, but has records of four cases of alarming haemorrhage from the uterus following minor operations on the vagina.

C. H. DAVIS, M.D.

Brown, G. V.: Valuable Methods Used to Extend Operability in Advanced Cancer of the Cervix. *Am. J. Obst. & Gynec.*, 1922, iii, 263.

The two methods which greatly extend the operability in advanced cancer of the uterus are: (1) the "starvation ligature," and (2) radiotherapy.

The normal cell has three periods of existence: growth, function, and regeneration for growth. During the period of function, reproduction is most active. The malignant cell has no period of function; its entire reproductive activity is thrown into the first stage, and only embryonic cell growth is produced. The normal functioning cell, as a part of the community life, is protected by the entire organism of which it is a part. The nervous system, the blood supply, and the lymphatics constitute a part of this mechanism. The malignant cell has no such protection; hence it is five times more vulnerable than the normal cell and is treated by nature as a foreign body. Malignancy is the property of the cell; the stroma is not a part of the neoplasia, but a measure of the organic defense. Therefore, since the malignant cell is five times more vulnerable than the normal cell, it is evident that by cutting down the blood supply by ligation and still further lessening it by sealing the smaller vessels with heat and also, by the application of heat, increasing the connective tissue which further protects against ingress of the malignant cells, we may completely destroy them, still leaving enough blood to the parts to nourish the normal cells.

Treatment with both heat and the starvation ligature method together has been extensively tried out in this country, and though opinions vary considerably, the most reliable evidence is in its favor. The author gives the results obtained in a series of eight cases.

All of the patients have shown improvement locally. One died of sepsis. In one case in which ligation was done but heat was used after the uncompleted operation there was local and general improvement until radium was employed when there was an immediate extension of the growth. In the last case operated upon the local condition has cleared up and the general condition is better. Seven of the patients (87.5 per cent) are living, two (25 per cent) are better, and five (62½ per cent) are clinically cured. Even if a permanent cure has not been effected, the relief of the symptoms and the prolongation of life have made this work worth while.

The purposes of this method are: (1) to control the hemorrhage which causes a constant drain on the patient's vitality or is so severe or frequent as to warrant the fear that it may prove fatal; (2) to favor the discharge of pus and necrotic tissue; (3) to diminish the absorption of toxic products; (4) to control the progress of the disease, thereby lessening the pain and suffering; (5) to render possible a later total extirpation; (6) to prolong life when all other methods have failed, and (7) in some apparently hopeless cases to save life and possibly to effect a clinical cure. E. L. CORNELL, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Rosensohn, M.: An Unusual Case of Ectopic Pregnancy. *J. Am. M. Ass.*, 1922, lxxviii, 729.

The patient, a woman aged 37 years, was admitted to the Lying-In Hospital February 24, 1921. Her last menstruation had occurred December 20, 1920. On the afternoon of the day of admission she had violent abdominal cramps and fainted twice. A diagnosis of ruptured ectopic pregnancy was made. A laparotomy was performed, and the right tube and ovary, the former the site of a ruptured tubal pregnancy, were removed.

Two days later there was consolidation of the lower lobe of the right lung, and the fourth day after the operation parotitis developed. After seven or eight days both the pneumonia and parotitis began to subside, and ultimately they cleared up entirely.

On obtaining a detailed history and referring to the hospital records it was learned that this patient had had the left tube and ovary removed for a ruptured ectopic gestation on March 27, 1917. Two days later she developed signs of pneumonia, and five days later, a marked parotitis.

An additional item of interest was that on November 10, 1918, she was delivered by abdominal caesarean section because of non-engagement of the head. C. H. DAVIS, M.D.

Kahn, M.: Infected Extra-Uterine Pregnancy Rupturing into the Bladder After Thirteen Years, with Discharge of Fetal Bones Through the Urethra. *J. Am. M. Ass.*, 1922, lxxviii, 889.

An Austrian woman, aged 57, a multipara widowed fourteen years, whose early history was unimportant, was curetted three months prior to her husband's death for irregular bleeding considered to be due to a miscarriage. Subsequently she suffered from right pelvic pain. Eight years before the author saw her the menopause occurred, but the condition persisted, and a year and a half ago was complicated by the development of a severe dysuria which grew steadily worse until six months previously when intermittent incontinence developed. During the incontinence small bones were occasionally passed from the urethra with excruciating pain.

The woman was greatly emaciated and in extremely poor condition. Vaginitis and several superficial decubital ulcers on the buttocks were present.

The meatus was markedly red and pointing. On account of great tenderness, the examination was unsatisfactory though a mass in the cul-de-sac and right pelvis could be made out. A stone was felt in the upper urethra, and there was dribbling of decomposed and purulent urine. On account of the severe pain and the patient's miserable condition, it was decided to remove the urethral stone and make an effort to improve her condition so that she might withstand an operation.

A day later, under local anesthesia, and with a finger in the vagina pressing up behind the stone to prevent its being forced into the bladder in attempts to grasp it with forceps, the stone, the size of a hazelnut, was easily removed. At the same time a few fetal ribs and two fetal femora were removed from the bladder through the urethra. These bones were calcified and of stony hardness, and when dropped on the tiled floor sounded like nails. The woman died the following day.

A partial autopsy revealed the small intestine adherent to a sac in the right pelvis about the size of the bladder with which it communicated by an opening admitting two fingers. Both the bladder and the sac contained more bones, including ribs and pieces of the skull, all of which were calcified.

E. L. CORNELL, M.D.

Cantalamesa-Carboni, L.: The Influence of Gestation on Ovarian Cysts (Contributo allo studio dell' influenza della gestazione sulle cisti ovariche). *Polidin.*, Rome, 1922, xxix, sez. ptat., 472.

There is considerable disagreement as to whether ovarian cysts do or do not increase in size during pregnancy.

In a case reported by the author, that of a primipara in the eighth month of pregnancy who came to the hospital with a diagnosis of hydramnios, this diagnosis was confirmed by examination and expectant treatment was given. Labor occurred at term with the birth of a living child but the tumefaction of the abdomen was little decreased and the woman later entered the hospital again. About 4 liters of fluid were then withdrawn by paracentesis but the effect on the size of the abdomen was scarcely noticeable. The nature of the fluid changed the diagnosis to ovarian cyst. On account of the patient's condition the first attempt to remove the cyst had to be abandoned, but a later attempt was successful and was followed by an excellent recovery. The cyst had its origin in the right ovary.

In this case the cyst increased in size very rapidly during pregnancy. Gynecologists generally agree that the development of malignant ovarian tumors is greatly stimulated by gestation. Therefore it should not be regarded as improbable that the same phenomenon occurs in benign tumors. Histologic examination in the author's case revealed no sign of malignancy, and clinically the woman shows no symptoms of recurrence seventeen months after the removal of the tumor. W. A. BRENNAN.

Geist, S. H.: A Contribution to the Histogenesis of Ovarian Tumors. *Am. J. Obst. & Gynec.*, 1922, 11, 231.

In one ovary of a woman 52 years of age was found a typical adenocarcinoma and in the other a process involving the greater portion of a somewhat enlarged gland that also resembled a new growth. The latter was composed of masses of cells, either isolated or arranged in large branching strands, which resembled those of the granulosa layer of the follicle. In these masses were cysts of varying sizes lined by cells of a cuboidal, columnar, or high cylindrical type such as are seen in the pseudo-mucinous type of ovarian cyst. Often in these cysts are found oval granular bodies which on superficial examination might be taken for degenerated ova but undoubtedly are degenerated tumor cells or secretion masses. The point of interest is the origin of this process. It seemed to be independent of the tumor of the other side because it bore no histologic resemblance to it and had none of the distinguishing characteristics of a malignant tumor. The stroma resembled that of the unchanged ovary and was a predominant part of the process. The stroma and cells maintained a definite relationship and at no point was there a proliferative or invasive tendency of an inflammatory infiltration. Mitoses were absent.

The cells composing the tumor resembled in their appearance and arrangement the granulosa cells, and the general structure of the growth in parts suggested the developing follicle with many variations. Because of this morphologic appearance, the arrangement of the tumor, and the wide variation in its structure, it seems probable that a cell of great potentiality must play the rôle of origin. Such a cell type is found in the embryological rests described by Goodall.

In addition, the development of cysts which form by degeneration of the larger cell masses and grow by coalescence suggests this as one method of development of the microcysts and later of the larger cysts which occur in the ovary. Furthermore, the cells lining these cysts are often cuboidal and occasionally high cylindrical mucin-containing elements and can be traced by direct observation from the large cell masses of granulosa-like cells. This leads to the presumption that some of the so-called simple cysts, follicular cysts, and even the more complex pseudo-mucinous cysts may be the products of such embryonic remains.

The nomenclature employed for the classification of this type of tumor is still indefinite as each writer has selected a name that has fitted his theory of origin or the fancied resemblance to some structure of the ovary. At the present time tumors similar to the growth described are termed "adenoma of the graafian follicle," "folliculoma malignum," "carcinoma folliculoides," "oöphoroma folliculare" and "folliculoma." Von Werdt described a group of tumors including several which were somewhat similar to the type under discussion as "granulosa-

cell tumors." Several of the terms, such as "adenoma of the graafian follicle," "folliculoma malignum," and "carcinoma folliculoides" should be discarded as the tumor is neither a malignant tumor nor an adenoma. In the author's opinion these growths should be grouped as tumors arising from persistent embryonic structures.

E. I. CORNELL, M.D.

Fillatowa, N.: A Rare Case of a Dermoid Cyst with Ball Formations (Ein seltener Fall einer Dermoid-cyste mit Kugelbildung). *Sborn. rabot po akush. i ginek.*, 1921, 1, 68.

A very rare form of dermoid cyst is a type in which peculiar ball formations are found. Only one such case has been observed in the Obuchow Hospital during the last eight years. In this instance a tumor as large as a child's head was palpable. At operation a cyst having its origin in the right adnexa was removed. The patient made an uninterrupted recovery.

The cyst was filled with a dark brown thick fluid in which floated about a hundred brown balls, the size of hazelnuts, which showed the presence of a cement-like substance and were soluble in ether. The cyst also contained hair. Microscopic examination showed fat droplets.

Rokitansky was the first to describe such ball formations in dermoid cysts. In 1912 Plenz described eighteen cases. The balls are formed by saponification of the fat and mechanical action upon fat masses.

SCHAACK (Z).

Skrobanski, K.: Operative Treatment of Chronic Purulent Disease of the Adnexa (Die operative Behandlung chronischer eitriger Adnexerkrankungen). *Sborn. rabot po akush. i ginek.*, 1921, 1, 44.

The discussion is based upon 103 cases which formed a part of the author's first series of 500 laparotomies. Twenty-one cases were operated on for exclusively purulent disease of the adnexa. In twenty-nine cases the suppuration of the adnexa was associated with cysts of the ovaries. In thirty-two cases there was extra-uterine pregnancy with suppuration in the tube. In twenty-one cases suppuration of the adnexa and fibromyomata of the uterus were present.

In twenty-nine cases the adnexa and the uterus were removed. The uterus was removed entire in eleven cases, and in eighteen a supravaginal extirpation was done. The removal of the uterus with both tubes and one ovary was carried out six times. In the operations of this series are twenty-three cases in which all the adnexa were removed and the uterus was left. In the future the author will restrict this operation to exceptional cases, cases of non-gonorrhœal nature, and those of young women in whom he has attempted the transplantation of an ovary from another woman. Unilateral removal of suppurating adnexa was performed thirty-nine times in young women without gonorrhœal infec-

tion. In nine cases the operation on the adnexa was combined with appendectomy. In one case the intestine was injured during operation, with opening of its lumen, and in fifteen cases without opening of the lumen. In one case the right ureter was cut through during the operation, the ureter was ligated and the patient recovered.

There were two fatalities in the 103 cases. The first death was that of a woman who had a carcinoma of the uterus and suppuration of the adnexa. The adnexa were removed but the patient succumbed. The second death was that of a woman with a large bullet-like submucous myoma and bilateral pyosalpinx. The myoma was in a state of disintegration, and fever had been present for two months before the operation which was hastened by the progressive deterioration in the patient's condition. Death occurred on the tenth day following operation, apparently from general exhaustion. At autopsy no peritonitis or general infection was discovered. With the exception of these two cases the result of all the operations was very good. Eighty-four patients were discharged before the eighteenth day, and seventeen not later than the twenty-fifth day. One patient with severe post-operative pneumonia was discharged on the thirty-fourth day.

Very interesting were the cases with large abscesses which ruptured during the operation, contaminating the abdominal cavity. In nine of twelve cases in which this occurred the wound healed by primary intention. In general the patients with marked suppuration and many adhesions bore the operative intervention remarkably well.

The author comes to the following conclusions:

1. In certain cases conservative treatment of suppurated adnexa may lead to anatomical cure with patency of the tubes as proven by a later pregnancy.

2. When conservative treatment is of no avail, or the patient lacks the means or time for its employment, operation is necessary.

3. The operation must be radical, especially for gonorrheal processes.

4. The advantage of laparotomy over the vaginal method is particularly evident in cases of suppuration of the adnexa.

5. Drainage of the abdominal cavity is unnecessary following operation for suppuration of the adnexa.

SCHWABER Z.

EXTERNAL GENITALIA

Ristic, L.: Chronic Sclerosed Ulcer of the Vulva (Ulcer vulvae chronicum sclerosum). *Lijel. vjesnik*, 1924, 34, 1, 22.

In Ristic's opinion the lack of agreement regarding the etiology of this condition is due to an incorrect interpretation of the swelling of the vulva which is, in fact, secondary to the ulcer.

The author has had occasion to observe seven cases. The fully developed ulcer is unusually hard. It feels like dressed leather, differing in this respect from other similar ulcers. Its margins are round or oval, extend above its base, and are often inverted. Its base is suppurated, covered with granulation tissue, and contracted in the form of a crater. Unlike tuberculous ulcers, this variety does not invade the mucous membrane of the vagina. The disease is painless. Staphylococci were found in the secretion in most of the cases. The histological examination revealed marked cicatrization of connective tissue, lymphoid and plasma cells, and marked dilatation of the blood and lymph vessels. In no case were specific excitants found.

In uncomplicated forms of this condition there was no involvement of the inguinal glands or the general health. The only circumstance common to all seven patients was that they were prostitutes and infected with venereal diseases. Histological and bacteriological findings showed that the disease has nothing in common with tuberculosis. Etiologically, the chief point to be considered is the continuous influence of irritation. Specific bacteria cannot be held responsible. In this respect there is a similarity to the crural ulcer. Dusting powders, cauterization, and, above all, cleanliness may stimulate healing.

KOLIN Z.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Oppel, W. A.: Gangrene Due to Adrenal Arteritis (*Gangraena arteritica suprarenalis*). *Verhandl. d. russ. chir. Piragel-Ges.*, Petrograd, 1921.

Oppel holds that the designation of gangrene as "spontaneous" is unsatisfactory and suggests the use of the adjective "arteritic," by which the pathologico-anatomical character of the changes in the arterial wall is not definitely stated. He believes that this condition is of adrenal origin, a disease of hyperfunction. He has studied the subject both experimentally and clinically.

Arteritic gangrene occurs chiefly in men and between the ages of 30 and 50 years. Of thirty-three patients, five were in the second half of the third decade, eleven in the fourth decade, ten in the fifth decade, and seven in the sixth or seventh decade. If we are to accept ordinary arteriosclerosis as the etiological factor in these cases we must assume an arteriosclerosis *præcox* in half of them (sixteen). The author could not demonstrate arteriosclerosis in the patients who were under 40 years of age.

The arteritis which is followed by "spontaneous gangrene" leads under all circumstances to gangrene of the extremities. Arteriosclerosis is not always accompanied by gangrene. The arteritis which ends in gangrene is an extensive disease of the arteries with predilection for the extremities and the peripheral parts of the body in general. Of the thirty-three patients, six lost both legs.

In the prodromal stage there is disappearance of the pulse in the apparently healthy extremity. Three of the author's patients developed gangrene of the upper extremities after loss of the lower limbs. In gangrene of the lower extremities it is not rare to find disappearance of the pulse in the upper extremities.

As the etiological factor of this extensive disease of the arteries, Oppel claims a hyperfunction of the adrenals with chronic poisoning of the organism by the excessive production of adrenalin. If this theory is correct, we must speak of a hyperadrenalism. Oppel's pupil, Girgolaft, was able to demonstrate in the blood of patients suffering from so-called spontaneous gangrene an increased quantity of vasoconstricting substances. Achuticz also made the same observation in the author's clinic.

On the basis of these theoretical considerations, Oppel proposes to treat adrenal arteritic gangrene by extirpation of one of the adrenals. For anatomical reasons it appears preferable to remove the left one. Oppel makes an incision parallel to the left costal arch and running into the posterior parts of the twelfth rib. The peritoneum is opened in the anterior part of the incision. After the abdominal

cavity is opened, the phrenico-colic ligament of Kuprijanoff is divided. In this manner a broad passage is made to the adrenal. The fatty capsule surrounding the kidney is opened at the anterior border of the kidney and the upper pole of the kidney exposed. The adrenal lies in the cellular tissue above this.

In all of the author's cases the operation was performed with a remarkably small loss of blood. He performed it in four cases. One patient died of cardiac weakness three days later. Autopsy showed sclerosis of the coronary arteries. In the second case gangrene developed and the excision of the adrenal did not prevent the necessity for amputation. In the third case the ulcers healed remarkably quickly after the operation, the pain in the foot disappeared, and the color of the extremity became normal. In the fourth case there was disappearance of the pain in the calf and of the feeling of cold. In every instance the pulse became soft after the operation.

Oppel emphasizes the fact that in all cases with failing pulse there is improvement. This result, he believes, confirms his theory as to the etiology. With his pupils he is now at work on experimental, pharmacological, hæmatological, and histological research on this subject. Hypertrophic and sclerotic processes can be demonstrated macroscopically in the excised adrenals.

MESSE (Z).

Fuller, H. G.: Malignant Disease of the Adrenals, with Report of a Case. *J. Urol.*, 1922, vii, 77.

Although the adrenals were first described by Eustachius as early as 1563, little attention was paid them until 1885 when Addison described the effects of disease of these glands. The clinical manifestations of malignant tumors of the adrenals are by no means pathognomonic. Benign tumors are the most common. Carcinoma and sarcoma present many peculiarities in growth and cellular pattern. As it is often difficult to distinguish these different forms, they are usually classed as malignant hypernephromata. Pre-operative diagnostic certainty is exceptional. Even a palpable tumor is apt to be diagnosed as a perirenal abscess, a tumor of the kidney, or disease of the gall-bladder, spleen, or liver. Urinalyses and pyelography, however, are diagnostic aids, and attacks of pain in the hypochondrium and lumbar regions due to pressure on the first, second, and third lumbar nerves and their branches are of especial diagnostic importance.

There seems to be no relation between Addison's disease and tumor of the adrenal. Sarcoma is said to be much the most frequent primary malignant growth. Primary sarcoma must originate in the connective tissue or the epithelium of the gland, the latter being of mesodermic origin. Primary

carcinoma must originate from epithelial elements with connective tissue for its stroma, or from misplaced tissue of other blastodermic layers.

The first operations for the extirpation of malignant tumors of the adrenals were done in 1881 and 1886. In a series of twenty-four surgically treated cases collected from the literature in 1904, the immediate mortality was 30 per cent, and only six were followed by recovery lasting from six months to six years.

The case reported by Fuller was that of a man of 47 years whose history was negative except that three months before the onset of his complaint he had been caught in a landslide. The condition for which he sought treatment began September 1, 1920, with pain in the left chest running around to the back. A diagnosis of pleurisy was made and the chest strapped. October 1, 1920, an X-ray of the chest showed some enlargement of the aorta, and in spite of a negative Wassermann test, the patient was put to bed for one month and given large doses of potassium iodide. The pain then became so severe that on November 2, 1920, a large dose of a sedative was necessary. Dullness over the left chest up to the fourth rib and pain over the left kidney suggested empyema, but another X-ray examination showed that the cause was some intra-abdominal lesion in relation to the left kidney area which contained a calcified mass near its center.

The author saw the patient first at this juncture. The kidney findings were negative but further X-ray studies showed a mass posterior to and above the left kidney. The calcified mass was posterior to and on a level with the kidney. Neither the temperature nor the leucocyte count was high. The outstanding symptom was severe unendurable pain referred to the back and radiating to the scapula.

On the basis of a tentative diagnosis between perinephritic abscess and new growth probably of the adrenal gland, an operation was performed November 8, 1920. Lumbar incision exposed a tumor mass apparently springing from the upper pole of the kidney, extending upward and backward, displacing the diaphragm, distinctly above and non-adherent to the kidney, and presenting all the physical characteristics of a malignant growth of the adrenal. The calcareous mass was located in the median and lower side of the tumor and was easily removed. The friability of the tumor and the density of its adhesions made it inadvisable to attempt its complete removal. Portions were excised for tissue study, and the incision closed around a large tube for drainage. Advantage was taken of this tube to insert 100 mgm. of radium three times. The temperature varied from 98.6 to 102 degrees from this time on to December 16, 1920, when the patient died. A few days before death a gastric fistula developed.

Microscopic examination of the tissue removed at operation showed a fairly uniform mass of large cells with large nuclei varying from round to oval. A number of very large cells with very large nuclei,

some with multiple nuclei and mitotic figures were found. The microscopic diagnosis was large round-celled sarcoma.

The large bone-like mass taken from the region of the tumor was completely soluble in hydrochloric acid and absolute alcohol. It was evidently a calcareous deposit.

C. D. HOLMES, M.D.

Simmons, R. R.: Gonococcal Infections of the Kidney. *J. Urol.*, 1922, 11, 113.

This article contains a discussion of previously reported cases of gonococcal infection of the kidney, the author's opinion concerning the routes of renal infection, a detailed report of the author's case, a chart of all the reported cases, the author's conclusions, and a complete bibliography.

Simmons calls attention to the fact that many of the reports of gonococcal infection of the kidney are based on presumptive evidence rather than on a careful bacteriological study. He states, however, that gonorrheal infection of the kidney may occur secondarily to urethritis—in fact, gonorrheal infection of any organ of the body and generalized infections are possible. He is of the opinion that infection of the kidney occurs either by the blood stream or by the urinary route. Bacteria may enter the blood stream during the course of any acute disease. This, Simmons believes, is equally true of gonorrheal infection. Gonorrheal endocarditis does not occur frequently because, as is the case with streptococcal infection, some trauma to the heart is necessary before the infection becomes localized in this particular locality. In the kidney many bacteria, some virulent, may pass through without producing trouble, while at other times, because of injury to the kidney and high virulence of the organisms, a renal infection will result. It is probable that these conditions are rarely fulfilled in the course of an ordinary attack of gonorrhea.

The collected cases in the literature include only twenty-four proven cases of gonococcal infection of the kidney. Simmons is of the opinion that the only satisfactory method of diagnosing gonorrhea of the kidney consists in obtaining the organisms by culture or smear directly from the kidney. Including the case which he reports, only fifteen were proven to be of pure gonococcal origin. Sixteen occurred in males. The earliest symptoms referable to the kidney occurred ten days after the onset of acute urethritis. The most remote case occurred nine years after infection. The fact that most of these cases occurred weeks or months after the initial infection indicates that gonococcal infection may remain dormant for a long time and later demonstrate itself in lesions distant from the original focus.

Simmons found both kidneys affected in only six cases, the right kidney in twelve, and the left in seven. Infection of the pelvis alone was demonstrated in twelve, and of the kidney and pelvis both in nine. A general bacteremia from gonorrhea was found in three cases. The most frequent

associated infection was that due to the colon bacillus.

The author's case is unique in that it was a combination of kidney fracture with pure gonorrheal infection. The patient had had gonorrhea for four or five months preceding a severe blow on the abdomen. This blow knocked him down and caused severe pain in the right upper quadrant. At operation, a rectus incision was made to explore the abdomen. Nothing was found except a tumor mass in the right kidney area. The kidney was exposed by lumbar incision. On stripping away the kidney, a fracture in the markedly thinned renal parenchyma could be readily palpated through the broken capsule. The kidney pelvis was explored for stones. From direct smears without sedimentation large numbers of intra- and extra-cellular gram-negative, biscuit-shaped diplococci were demonstrated. On culture media there was a pure growth of gonococci.

It was impossible for the author to determine how long the gonorrheal infection had continued in the kidney. He is of the opinion, however, that it was not of very recent origin since the severe hydronephrosis had caused marked atrophic thinning of the kidney substance. He believes also that it was mild as there was no history indicating when it had begun. Hematogenous origin of this infection was strongly suggested by the fact that the patient had a completely negative history as regards bladder discomfort prior to his admission to the hospital.

The author's conclusions are summarized as follows:

1. Gonorrheal infections of the kidney are of rare occurrence, only twenty-four previous cases having been found in the literature.
2. Gonorrheal infections associated with infections due to other organisms are relatively frequent, ten cases having been reported.
3. Hematogenous infections seem to be more common than ascending infections.
4. The demonstration of the gonococcus in the kidney tissue or the excretions from the kidney either by cultural or staining methods is the only sufficient criterion for diagnosis.
5. Gonorrheal pyelitis may not cause symptoms of sufficient gravity to suggest its presence.

GILBERT J. THOMAS, M.D.

Green, T. M.: Stricture of the Ureter as an Explanation of Some Obscure Abdominal Conditions. *Surg., Gynec. & Obst.*, 1922, xxxiv, 388.

Green finds the most frequent site of ureteral strictures in the broad ligament portion. They are either congenital or acquired. Congenital strictures are considered rare by most authorities. The acquired type may be of extrinsic or intrinsic origin. The extrinsic causes are pressure on the ureter from neoplasms, accessory or anomalous vessels of the kidney, and traumatism of the peri-ureteral tissue. The intrinsic causes are tuberculosis, bilharziasis,

calculus, malignancy, and pyogenic infection. Syphilis should always be borne in mind as a cause. Among the organisms found most frequently are the colon bacillus, staphylococci, streptococci, and gonococci.

The effects of stricture on the kidney and the ureter are gradual dilatation and atrophy. Following dilatation of ureteral strictures the author has found some very encouraging results in lower blood pressure readings.

One of the most characteristic symptoms of ureteral stricture is pain. This may be acute or dull, constant or intermittent, referred to the pelvis, to the back, or the course of the ureter. With each recurring attack of pyelitis and with menstruation, the pain is often aggravated. Other symptoms of ureteral stricture are gastro-intestinal disorders. The urinary signs are generally intermittent and consist as a rule of night voiding, day frequency, and tenesmus.

The diagnosis is made from a history of abdominal pain, urinary symptoms, and positive urinary findings, and by palpation revealing tender spots low down in the broad ligaments or at a point 1 in. to the outer side of the umbilicus on a level with the brim of the pelvis. The cystoscope often gives valuable findings, such as a urethritis and occasionally actual urethral stricture. The latter is always suggestive of a stricture of the ureter above. The mons ureteri sometimes shows a bullous edema. When a catheter is passed a steady stream of urine is very suggestive of hydronephrosis and stricture. Another very definite diagnostic sign is the extreme pain when the catheter passes through the area of urethritis or stricture. The most definite means of diagnosis is the passing of the catheter with a wax bulb.

Finally, a pyelo-ureterogram serves not only to check up the possibility of hydronephrosis but demonstrates the presence of stricture and its location.

LOUIS GROSS, M.D.

BLADDER, URETHRA, AND PENIS

Latzko, W.: The Extended Radical Operation for Cancer of the Bladder and Its Anatomical Basis (Die erweiterte Radikaloperation des Blasenkrebses und ihre anatomische Begründung). *Ztschr. f. urol. Chir.*, 1922, viii, 135.

The author first describes his amplification of Wertheim's radical operation for carcinoma of the uterus. The complicated structure of the parametrium, which extends on each side from the pelvis to the uterus in the form of a wedge, he dissects into three layers and carefully isolates each layer of connective tissue, of which the central carries the vessels, so that he may divide them at a greater distance from the uterus than is possible when a common ligation of the parametrium is done.

This idea of dissecting the pelvic connective tissue he applies to the transperitoneal radical operation for carcinoma of the bladder. After

division of the peritoneum between the bladder and uterus, three strong bands of connective tissue on each side of the bladder are divided as close as possible to the uterus. Thus the floor of the pelvis is gradually approached so that finally the bladder remains connected only with the internal orifice of the urethra. By this procedure the author extirpates the bladder with a large amount of connective tissue and obtains better end results. In order to improve the chances of primary healing in the radical treatment of carcinoma of the bladder it is necessary to extraperitonize the region of operation before opening the infected bladder.

BAETNER [Z]

Thomas, B. A., and Pfahler, G. E.: *The Technique of the Treatment of Carcinoma of the Bladder and Prostate by a Combination of Surgery, Electrocoagulation, Radium Implantation, and the Roentgen Ray.* *Arch Surg.* 1922, IV, 451.

The authors describe four of the most effective therapeutic measures to combat malignant disease of the bladder and prostate.

It is of the utmost importance that the treatment be reserved for certain types of carcinoma of the bladder or prostate commonly regarded as inoperable, in which the growth is so extensive as to preclude the advisability of resection of the bladder with or without transplantation of the ureter. The same statement applies to malignant disease of the prostate. In the latter, extracapsular perineal prostatectomy should be done if possible; otherwise, if the disease is not too extensive and metastasis has not occurred, the therapeutic procedures here detailed and applied suprapubically, by cystotomy, after an interval of from two to four weeks or after perineal exposure of the gland, are indicated. These methods promise results far better than have been obtained in the past by other forms of treatment.

TECHNIQUE

Attention to the preliminary preparation of the patient and his qualification for these operative procedures so far as organic disease, especially kidney damage, is concerned, is just as obligatory as in cystotomy for any indication, notably prostatectomy.

The patient is placed in the recumbent position, prepared for the Trendelenburg position if the latter is desired later, with the thighs abducted, the knees partially flexed, the feet together and strapped in position. The bladder is irrigated and filled by means of a catheter with from 10 to 12 oz. of a 1:6,000 solution of silver nitrate. A clamp is applied to the catheter distal to the glans penis, and a tourniquet placed around the body of the penis to prevent the escape of the solution from the bladder.

After the usual iodine preparation of the skin, a vertical median incision is made and the bladder opened well up on the anterior wall after the silver nitrate solution has been allowed to escape through the catheter. The freshly cut edges of the

wound are protected by sterile towels, the carcinomatous mass in the bladder is exposed with the use of special retractors, and the process of electrocoagulation is begun. A large pad electrode, measuring 6 by 8 in., is placed under the buttocks and in direct contact with the skin. The wire connected with this electrode must be firmly attached so that it cannot separate and make a ground with the operating table, and should be covered by rubber tubing so that there is no opportunity during the operation for the current to leap from the wire to the table. Attached to the indifferent electrode or pad, it is then attached to one side of the d'Arsonval instrument. The other pole of the d'Arsonval is attached to the active electrode. All of these electrodes, needles, and wires are sterilized by boiling. The spark gap and rheostat having been adjusted so that a current of from 500 to 1,500 ma. can be used, the growth in the bladder is carefully destroyed and each portion of the tumor is coagulated with sufficient rapidity to prevent hemorrhage, and not so slowly that the steam from the cooking tissues scalds or macerates the wall of the bladder.

After all visible and palpable evidence of the tumor mass has been destroyed and removed, the bladder is irrigated with a warm 1:3,000 to 1:6,000 solution of silver nitrate and the incised edges of the opening are painted with a 5 per cent solution of resorcin. The interior of the bladder is then sponged as dry as possible, and the radium needles are implanted. The needles which they now use contain 10 mgm. of radium element each. Each needle is attached to a waxed silk thread and is sterilized as it is prepared. These sterilized needles are introduced into the base of the tumor by carriers, approximately from 1 to 2 cm. apart, and left in place from eight to eighteen hours, depending on the probable degree of malignancy and the extent of the disease. From six to fifteen needles are used, depending upon the size of the base of the tumor. Electrocoagulation is, of course, followed by sloughing of the destroyed tissue, and this process will require approximately three or four weeks.

A large, properly fenestrated rubber drainage tube 2 to 2½ cm. in diameter is introduced into the bladder, care being exercised not to allow the end to impinge on the vesical trigone, and is fixed at the upper angle of the bladder incision by closure of the wound below with a continuous chromic gut suture. The strand of threads attached to the radium needles is passed out through the drainage tube or along the inferior aspect of the tube externally. A small fenestrated rubber tube is passed into the space of Retzius for perivesical drainage in case of bladder leakage and secured to the lower angle of the skin incision. The large tube is then rotated downward and secured to the skin on either side of the incision just above the small perivesical drain by a suture of silkworm gut. The recti muscles are drawn together by one or two sutures of plain gut, and the fascia is closed to the level of the tubes by a continuous suture of chromic gut. The skin is closed by inter-

rupted sutures of silkworm gut and the radium needle threads are secured for the time desired, if passed through the lumen of the drainage tube, by an L-shaped glass drain connector. At the end of the first week after the operation the drainage tube and all sutures are removed and a special ambulatory apparatus for drainage is fitted to the patient.

If the carcinoma involves the prostate gland, the treatment should be applied as a rule both suprapubically and perineally.

The suprapubic technique differs in no essential from that employed when the carcinoma is confined to the bladder except that when there is little protrusion of the growth into the bladder, destruction of the mass by electrocoagulation will not be necessary and the radium needles can be inserted immediately into the growth about 1 cm. equidistant as described by Herbst or as described above.

Intensive roentgen-ray cross-fire may be of advantage and should precede operative intervention, thereby destroying outlying carcinomatous foci in the lymphatics, limiting the spread of the disease temporarily, and probably preventing certain metastases that might otherwise occur.

Ante-operative roentgen-ray treatment is probably more important in all forms of malignant disease than postoperative treatment and will consume a period of about two weeks. It should cover the entire pelvic area and extend as far up along the line of the lymphatics as it is probable that the disease has advanced. As postoperative treatment at least two full doses should be given through each area, beginning about two weeks after the radium application and again about three or four weeks later.

RESULTS OF TREATMENT

By this quartet of therapeutic measures, twenty-six patients have been treated, with only two deaths. One patient has not been traced. The majority have been treated and observed only during the last three years. The authors desire merely to describe the technique evolved from experience and at present employed in this formerly inoperable type of bladder and prostatic carcinoma, and to state that they are convinced that this treatment offers more in the way of prolongation of life, if not of cure, than any other method heretofore employed.

THEODORE DROZDOWITZ, M.D.

Paul, H. E.: Chronic Infections of the Male Urethra and Its Adnexa. *J. Urol.*, 1922, vii, 125.

The author has investigated 100 cases to determine the length of time and the amount of systematic and judicious treatment necessary to effect a cure of gonorrhoeal infection. The patients were regarded as cured only when there was absence of urethral discharges and urinary disturbances, the urine was free from microscopic pus and microscopically free from cloudiness, filaments, and shreds, the urethra was free from infiltrations, the prostate and seminal vesicles were normal on palpation, and the secretions of the prostate and vesicles

showed not more than three pus cells in a high-power field on two films three to eight weeks after the treatment had been discontinued.

The average age of the patients was 27 years and the time elapsed since the last acute urethral infection varied from two and one-half months to twenty years (filiform stricture). The longest duration of treatment was forty-eight and eight-tenths weeks, the shortest five weeks, and the average eight and five-tenths weeks. About 66 per cent of the patients had a urethral discharge before beginning treatment, and in 18 per cent gonococci were demonstrated after treatment had been begun. Epididymitis was present previously in 24 per cent, and in 4 per cent developed during treatment. Six cases showed a positive Wassermann reaction. In seventeen cases some operative procedure was done as part of the treatment.

The author concludes that every male with the slightest symptom of residual gonorrhoeal infection is potentially infectious, and that gonococci may remain in the urethra or adnexa for years. In a large majority of cases these infections can be totally eradicated by appropriate treatment regardless of the time that has elapsed since the original infection.

THOMAS F. FINEGAN, M.D.

Young, H. H.: An Operation for the Cure of Incontinence Associated with Epispadias. *J. Urol.*, 1922, vii, 1.

After quoting Hart regarding the development of epispadias the author reviews the literature concerning the various operations for its cure. The cosmetic results were satisfactory but the operations for the incontinence were failures. The works of Stiles, Steiner, Page, Stettiner, Stroeckel, and Barney are reviewed.

In 1908 Young repaired both sphincters in a patient who had had a medium perineal urethrotomy followed by incontinence. The muscle was exposed by a suprapubic opening and excision of the mucous membrane along the posterior wall of the vesical orifice. The outlet was closed and made narrower by means of transverse sutures of catgut.

The external sphincter was exposed by a perineal opening into the membranous urethra. Closure was effected with several layers of catgut. Suprapubic drainage was used. The incontinence was cured.

Subsequently several other cases were operated upon with the same result.

In epispadias the same technique was used except that the roof of the urethra was employed. Two cases were reported. Examinations had shown complete incontinence.

In the first case the roof of the prostatic urethra was excised through a suprapubic opening. Then, from below, the roof of the membranous urethra was excised until this incision met the incision from above. Through the suprapubic opening the internal sphincter was closed so that a tight orifice was produced. The same suture closed the adjacent anterior wall of the bladder. The mucous

membrane was not included. Through the epispadias and with a "boomerang needle holder" the roof of the membranous urethra was closed with a chromicized catgut suture. Suprapubic drainage was used. Complete control was obtained.

Later the plastic to repair the epispadias was done. Wide lateral incisions were made to give abundant tissue for a wide urethra. To quote: "At the posterior angle the incision went down into the depths of the cavity toward the bulbous urethra and the skin on each side was elevated freely. At the glans penis the incision on the left extended only a short distance onto the anterior surface of the glans, the new urethra being left continuous with the skin of the glans. On the right the incision was carried deeply through the substance of the glans to the inferior surface so as to bisect the glans and displace the urethra to its normal position. The corpora cavernosa were widely separated by an incision to the right of the new urethra, and after this had been approximated by continuous chromicized catgut and reinforced by a second line of continuous sutures, the urethra was depressed between the corpora cavernosa, the left corpus being rotated with it and the two corpora then held in place above the new urethra by a continuous line of chromicized catgut sutures." The skin was closed along the dorsum, and an additional stitch was used for the foreskin. The glans penis was approximated with interrupted stitches of chromic gut above the meatus. At the upper angle an opening was left for drainage.

Suprapubic drainage was used during healing. Later sounds up to a No. 22 F. were passed. Coitus was normal.

The second case, that of a boy of 9 years, was practically the same. The incontinence was cured and the epispadias eliminated.

In conclusion the author brings out the following points:

Simple epispadias can be repaired. When incontinence is present there is a muscular defect along the roof of the urethra associated with dilatation of the vesical neck and membranous urethra. The incontinence may be cured by excising the superabundant roof and restoring the vesical neck and external sphincter by sutures.

CLAUDE D. PICKRELL, M.D.

GENITAL ORGANS

Fraser, A. R.: A Survey of the Treatment of Acute Gonorrhea in the Male. *J. Urol.*, 1922, vii, 87.

The general treatment consists of exercise, hydrotherapy, and dietetic and hygienic measures. Sexual excitement must be avoided, and the bowels well regulated. The testes should be supported in a well-fitting suspensory. At the outset, all active exercise should be forbidden, but later ordinary exercise should be increased. At least twenty-five glasses of some bland fluid should be taken daily. Highly spiced foodstuffs, sauces, pickles, coffee, strong tea, and especially alcohol, should be avoided.

Antiseptics do not influence the course of the disease and the balsamics cause renal and gastric disturbances and rashes. Burning of the urethra may be controlled by copious draughts of water, lime water, barley water, or milk. Alkaline mixtures, potassium or sodium bicarbonate or citrate or liquor potassii, are useful. Bromides are best for painful erection, and should be supplemented by cold applications to the penis. When narcotics are necessary for loss of sleep, suppositories of opium, atropine, or belladonna should be used.

Local treatment is carried out by urethral irrigation, urethrovesical irrigation, urethral injection, and urethral instillation. Urethrovesical lavage is the most satisfactory method. The urethral injection should be used only when irrigation is impracticable or in the treatment of out-patients who attend irregularly. For all acute cases and many chronic cases potassium permanganate in solution of 1:12,000 to 1:8,000 should be used. This may be alternated with zinc permanganate in the strength of 1:10,000 to 1:6,000 as a mild astringent antiseptic. Oxycyanide of mercury in a strength of 1:8,000 to 1:4,000 as an irrigation is ideal for secondary infections. A few chronic cases respond well to silver nitrate in the strength of 1:20,000 to 1:10,000. Of all the preparations at our disposal, the author believes these four to be the most satisfactory. Their results are due, not to a germicidal action, but possibly to a chemotactic action on the organisms and leucocytes. In general, the flavine compounds and the dyes are not very satisfactory. Organic silver preparations are indicated in the early abortive stage; later, when the discharge is fully established, their use is contra-indicated. The colloidal emulsions have poor powers of penetration. Silver preparations must be diluted with distilled water and freshly prepared. Picric acid in 1 per cent solutions ranks with acriflavine in penetration and is irritating.

Vaccines promote increased resistance and attack the organisms which have penetrated the urethral mucosa; later they serve as a test of cure. Vaccines may be simple (gonococci alone) or mixed with secondary organisms. Striking results have been obtained with ordinary stock vaccines, although seemingly toxic. Sensitized vaccines have usually been unsatisfactory. The author has had good results from detoxicated vaccines, but the correct strains of organisms are essential. Antigonoococcal serum has been constantly unsuccessful. The results of chemotherapy have been disappointing. In the hands of some investigators electrotherapy has given apparently excellent results.

THOMAS F. FENTIGAN, M.D.

Geraghty, J. T.: The Treatment of Malignant Disease of the Prostate and Bladder. *J. Urol.*, 1922, vii, 33.

The author considers that 75 per cent of cases of prostatic cancer have an associated prostatic hypertrophy or that a previous adenoma had been

present, subsequently replaced by cancer, and that in but 25 per cent of cases the cancer is unassociated with adenoma.

Early in the condition the symptoms are usually those referable to the urinary obstruction due to the adenomatous growth. In these cases cystoscopy may show a picture typical of benign hypertrophy. The carcinomatous nature of the growth is determined by detecting by rectal palpation a hard induration, irregularity of the surface, the formation of an intravesical plateau, or the extension of the process into the seminal vesicles.

When the patient is first seen the condition has usually involved the seminal vesicles or the posterior bladder wall, rendering total extirpation impossible. In only twenty-one of 400 cases was it possible to remove all cancerous tissue. In fourteen cases the radical operation of Young was performed, resulting in a cure in 50 per cent, while in seven a total prostatectomy was done, resulting in a cure in all. The author concludes that in 95 per cent of the cases of cancer of the prostate surgery alone is hopeless insofar as total removal of the malignant disease is concerned.

Since 1915, radium alone or in combination with operation has been used in 150 cases. Up to fifteen months ago the technique of the radium application consisted in applying 100 mgm. for one hour and repeating the application every second or third day. Both the urethra and the rectum were treated, different areas being selected each time. Occasionally local irritation resulted. During the past eighteen months 12.5 to 20 mgm. of radium have been introduced into the prostate by means of needles thrust through the perineum and left for from fifteen to thirty hours.

Following this treatment in some cases the gland decreased in size, lost its stony hardness, and became rather elastic. The symptoms of obstruction, however, were not much influenced, and in cases of large residual or complete retention, prostatectomy was done. In every case operated upon after the employment of radium, distinct cancer tissue, apparently unchanged, could be found in the removed gland.

The author discusses the technique of the perineal operation. Following this procedure he placed radium, 600 to 1,000 mgm.-hrs. at one application, back of the bladder and beneath the vesical orifice. After closure of the wound a series of radium treatments was given. When little or no obstruction was present radium was of value in the treatment of the cancerous lesion.

About 40 per cent of all bladder tumors are benign or malignant papillomata. In these cases fulguration is effective. In cases of true papillary or infiltrating carcinoma it fails to remove the growth. For the latter, radium has been employed. At each treatment 100 mgm. were applied directly to the growth by means of intravesical instruments and left for one hour. In no instance has it been possible to cure a distinctly infiltrating tumor with

radium. The implantation of emanation tubes in cases in which resection was not feasible has been discouraging in its results. Papillary cancer with only superficial infiltration may be treated by radium. Tumors anterior to the vesical orifice, regardless of type, should receive surgical treatment as they are almost inaccessible by the intravesical route. Even very extensive cancer of the bladder may be without evidences of metastasis.

The article contains illustrations of the various steps of the perineal resection of carcinomatous tissue.

H. G. HAMER, M.D.

Young, H. H.: The Radical Cure of Tuberculosis of the Seminal Tract: I. A Brief Survey of the Literature. *Arch. Surg.*, 1922, iv, 534.

Genito-urinary surgeons are by no means in agreement regarding the best method of treating cases of genital tuberculosis. Some treat expectantly, while others use vaccines, resorting to surgery for the evacuation of pus after the tuberculous process has broken down. Probably the largest number perform minor surgical operations, such as epididymectomy, generally with the removal of a large part of the vas deferens. Young urges the radical operation in this type of tuberculosis, reporting the results in his series of fifteen cases.

The first part of this article is a brief survey of the literature, beginning with the first vesiculectomy by Ullman in 1889. Von Buegner's plan of injecting the vas with glycerin containing iodoform was followed by reports of fatalities due to infection and hæmorrhage. The views of Guyon, Cunningham, Thompson-Walker, MacFarland-Walker, E. L. Keys, Jr., Barney, and others regarding the modes of infection and the results of the various forms of treatment are given.

The second part of the article deals with a very careful, comprehensive study of the cases admitted to the Johns Hopkins Hospital and the author's private clinic.

In the third part of the article Young analyzes the statistics taken from the literature and his own series of cases. He believes that these statistics show conclusively that in the great majority of cases the primary involvement is in the seminal vesicles (or prostate), the epididymis or testicle being secondarily involved. The external disease is bilateral in from 30 to 50 per cent of the cases. In a probably larger percentage the involvement of the seminal vesicles is bilateral. The disease reaches the epididymis generally by the lymphatics of the cord from the seminal vesicles and usually first involves the globus minor. It is probably erroneous to suppose that primary tuberculosis of the epididymis occurs often. It doubtless develops seldom through blood-stream infections, as is so often asserted. The seminal vesicles are not only the primary focus from which the epididymis is involved, but also that from which the condition spreads in many cases to the prostate, the bladder, and the kidneys. In fact, tuberculosis in the region of the

prostate and vesicles is far more dangerous to the entire organism than tuberculosis of the epididymis and probably responsible for the fearful mortality in cases of genital tuberculosis variously estimated at from 27 to 60 per cent. Therefore it is the duty of the surgeon to attack the most dangerous focus of involvement, namely, that of the vesicles and prostate, and in the great majority of cases of tuberculosis of the seminal tract radical operation should be regarded not only as the operation of choice but as practically imperative.

Young gives a detailed and profusely illustrated description of the radical operation for excision in tuberculosis of the entire seminal tract.

In the author's cases the operation was not reserved entirely for patients in good general condition. Seven had fairly definite evidence of tuberculosis of the lungs previous to operation and five had tuberculosis of the kidney which in three instances made nephrectomy necessary. Regardless of this fact, only one death has been recorded in the last seven years, and all but one of the cases have been followed for almost a year at least. Perineal urinary fistula is present in only one case, and in this instance only a few drops of urine escape during urination. Discharging sinuses are present either in the scrotum, the groin, or the perineal wound in six cases. Most of these are recent cases. Statistics show that the complications mentioned usually cease spontaneously in time. At any rate, they are not really annoying and the results compare favorably with those of epididymectomy or castration which, according to the literature, are followed much more frequently by more annoying discharging sinuses.

The author's conclusions are summarized as follows:

"Statistics show conclusively that in most cases of 'genital tuberculosis' the primary focus is in the seminal vesicles. 'Tuberculosis of the seminal tract' is therefore the better name.

"From the seminal vesicles, the globus minor of the epididymis is generally next attacked.

"From the seminal vesicles, the prostate, urethra, and bladder are often attacked later.

"From the seminal vesicles, more rarely, the kidney may be invaded through the lymphatics along the ureter.

"From the seminal vesicles by the posterior line of lymphatics, the mediastinum and the lungs may be involved.

"Tuberculosis of the seminal vesicles (ampullæ and prostate, if involved) ranks first in importance when a curative operation is proposed for genital tuberculosis.

"Epididymectomy with injection of the vas and vesicle, as proposed by von Baerger, is preferable to simple excision, as Cunningham has shown.

"Still better results may be obtained by bringing the vas permanently out of the skin in the groin for frequent injection and continuous drainage as proposed by myself in 1901 and often employed.

"But with all the non-radical procedures a high percentage of failures—ultimate infections of remote organs and death—results.

"The only hope of radical cure or complete arrestation of the disease is by the radical operation—'epididymovesiculectomy,' or better, 'excision of the tuberculous seminal tract.'

"This operation has already saved many otherwise hopeless cases.

"By the technique described by myself, with the use of a long urethral prostate tractor, the urinary tract can be avoided, while the removal of vesicles, ampullæ, and prostatic lobes is facilitated.

"The entire vas deferens can be removed by the to-and-fro traction described without opening the inguinal canal as previously done.

"The incisions are comparatively small and the operation can be performed under procaine infiltration anesthesia (1:400) if the lungs are involved.

"The fifteen cases reported here (in seven of which the lungs were probably previously involved, in five of which one kidney was tuberculous, etc., and in which only one patient died of tuberculosis a year later, and the others are apparently completely arrested) show the effectiveness of this radical operation.

"In my opinion the only justifiable operation in tuberculosis of the seminal vesicles and epididymis is a radical excision of the seminal vesicles and ampullæ (and lateral lobes of the prostate if involved) through the perineal prostatectomy incision, coupled with epididymectomy and extraction of the entire vas deferens, with partial or complete castration if necessary (a rare occurrence).

"The old-fashioned castration is an unnecessary mutilation and does not often cure. Radical excision of the seminal tract is the operation of choice."

HERMAN L. KRETSCHMER, M.D.

Kretschmer, H. L.: Calcification of the Seminal Vesicles. *J. Urol.*, 1922, vii, 67.

The author reports a case of extensive calcification of the left seminal vesicle in a boy 14 years old who had also tuberculous pyonephrosis on the left side. A diagnosis of vesical calculus had been made previously by another surgeon who, at suprapubic operation, found no stone.

Reference is also made to the type of calcification occurring in old men. Calculi in the seminal vesicles and calcification involving the vas deferens may prove confusing in the diagnosis. Many of the reported cases of calcification of the seminal vesicles were cases of this type.

H. G. HAMER, M.D.

Enderlen: Transplantation of the Testicles (Ueber Hodentransplantation. *Zentralbl. f. Chir.*, 1901, xlviii, 1882).

On the basis of the results in four cases in which the testicles of young persons were transplanted into the musculature of the abdomen or the inguinal region of patients of the same age Enderlen concludes that successful transplantation of testicles is

impossible. In none of these cases was there any return of function. Macroscopic examination of sections of the transplants removed after several weeks seemed to show a healing over, but microscopic examination revealed necrosis and fatty degeneration. Testicle transplantation is successful only when the microscope proves definitely that the implanted tissue has healed in. VORSCHUTZ (Z).

Cunningham, J. H., and Cook, W. H.: The Operative Treatment and Pathology of Acute Epididymitis. *J. Urol.*, 1922, vii, 149.

Epididymotomy is advisable in cases in which there is a severe local and general reaction and in cases of acute and subacute epididymitis. It causes rapid relief of the pain, greatly shortens the course of the disease, and exerts a beneficial influence on the inflammatory process in the seminal vesicles and prostate, thereby lessening the duration of treatment of these organs. Following the operation, recurrent epididymitis is rare and sterility is not greater than following non-operative treatment.

The pathologic study of epididymitis shows a rapid destructive process in the tubules and intertubular tissue. Swollen tubular epithelium, the accumulation of polymorphonuclear leucocytes in

the tubules, proliferative activity of fibroblasts, and the formation of fibrin demonstrate a rapid process. The development of an abscess is frequent. The permanent defect in the tubules is shown by a cellular change in the epithelium, the lumen, and the contents. There is an increase in muscle fibers in the tubular wall. H. W. PLAGGEMEYER, M.D.

MISCELLANEOUS

Campbell, M. F.: Suction Drainage, with Presentation of an Apparatus. *J. Urol.*, 1922, vii, 153.

The author describes an apparatus for post-operative drainage of the urinary organs, especially the bladder. A small filter suction pump is attached to a $\frac{1}{4}$ -in. gas pipe and a collecting bottle. The latter, which has a two-hole rubber stopper, is connected with the suction catheter in the wound and also with the pipe. Between the pump and the bottle is a manometer safety valve which is simple in construction and maintains the pressure in the entire system at 20 mm. Hg. The suction pressure gauge was found to be essential for safety in the use of strong suction. The apparatus has been employed successfully in practically every type of urological case. H. W. PLAGGEMEYER, M.D.

SURGERY OF THE EYE AND EAR

EYE

Wright, R. E.: *Extirpation of the Lachrymal Sac.* *Indian M. Gaz.*, 1922, LVII, 52.

Greenwood's operation for extirpation of the lachrymal sac is similar to that originated by Elliott.

Greenwood first demarcates the anterior lip of the lachrymal fossa by placing the finger on the canthus and pressing on the lachrymal crest with the finger nail. He then makes the incision over the curved line thus delineated. Wright, however, considering the avoidance of the angular vein of the utmost importance, always incises external to the vein, whatever the surface marking of the crest. In making the infiltration (2 per cent novocaine in 1:1,000 adrenalin) care is taken to insert the needle on the temporal side of the vein. The skin being put evenly on the stretch with the canthus as the center, a slightly curved incision (2 cm.) is made with the blade cutting away from the operator; this is carried through only skin and subcutaneous tissues so that when the Meller retractor is inserted a quadrilateral field is exposed with the internal tarsal ligament crossing its upper third while the oblique fibers of the orbicularis occupy the lower two-thirds.

Using Meller's technique, the orbicularis is first split and then the fascia which, stretching between the anterior and posterior crests, ensheaths the sac externally. The exposed sac lying inside the fascial sheath is then detached from its bed with an Elliott dissector.

When necessary, the internal tarsal ligament is severed at its attachment to the bone. The sac is then seized, the canaliculi are divided with scissors, and the canal is cut off the duct as low as possible. A large lachrymal probe is passed down the bony canal as a guide and, if necessary, forced through into the meatus. A few short strokes of a curette are then made, the instrument being turned with its face against the bone so as to invaginate the sleeve of mucous membrane from the point of its severance downward.

The author is strongly in favor of occlusion of the canaliculi as advocated by Greenwood but suggests that clamping them with Halstead's mosquito forceps before cutting them is all that is necessary. The closure of the wound is a matter for the individual surgeon.

Dead space is eliminated when dressing the wound by applying a small round pad squeezed out of a saturated aqueous solution of picric acid and over this placing a larger pad and bandaging tightly for three or four days. This operation is rapid and practically bloodless.

Two points which the author considers important are:

1. Occlusion of the canaliculi as practiced by Greenwood.
2. Localization and preservation of the angular vein.

C. CORBIS YANCY, M.D.

O'Reilly, W. F.: *The Extraction of Non-Magnetic Foreign Bodies from the Anterior Chamber of the Eye.* *Boston M. & S. J.*, 1922, CLXXVI, 418.

O'Reilly states that from 20 to 25 per cent of all foreign bodies entering the eye find lodgment in the anterior chamber. While a magnetic foreign body may be removed with the magnet, it is sometimes exceedingly difficult to remove a non-magnetic body, particularly after it becomes enmeshed in the iris. O'Reilly uses a horsehair loop which he inserts through a keratotomy incision made close to the limbus as near the site of the foreign body as possible. He summarizes the advantages of this method as follows: (1) ability to work in the filled anterior chamber; (2) no disturbance of the anterior limiting layer of the cells of the iris; (3) no entanglement of the iris; (4) absence of operative hemorrhage; (5) minimum postoperative reaction; (6) no undue pressure on the intra-ocular contents; and (7) the use of an inexpensive and adaptable instrument.

If it is impossible to remove the foreign body in this manner he removes the portion of the iris which contains it.

THOMAS D. ALLEN, M.D.

Hepburn, M. L.: *Experience Gained from 140 Trephine Operations for Glaucoma.* *Brit. J. Ophth.*, 1922, VI, 97.

In presenting this review of cases, Hepburn claims to be merely continuing an important discussion without contributing anything new. He urges the use of the trephine operation instead of an iris-inclusion operation, but admits that he has had the same complications experienced by all other surgeons. Among these he mentions: (1) button-holing the conjunctival flap (in which case he selects a new area for the operation); (2) loss of the disc; (3) complete iridectomy, intentional or unintentional; (4) vitreous loss (two out of three cases having very good vision afterward); (5) delay in re-formation of the anterior chamber; (6) forward dislocation and opacity of the lens (Hepburn is not sure that there were no opacities before); (7) detachment of the choroid; and (8) late infection (not all infection following an operation is due to the operation).

The author's most successful results are obtained when the operation is done early in the disease. He operates whenever there has been a single sub-

acute attack or the ordinary signs and symptoms associated with glaucoma are noted. He describes his technique, emphasizing the necessity for a thick conjunctival flap.

T. D. ALLEN, M.D.

Kirkpatrick, H.: The Etiology of Primary Cataract. *Brit. M. J.*, 1922, i, 467.

After a short discussion of the usually considered etiological factors of cataract, Kirkpatrick discusses the association of disturbances in some of the internal secretory glands, particularly the generative glands, and makes the following statement: "Satisfactory compensation occurs (in old age) in most cases, but its establishment may sometimes be rendered difficult or may be prevented by the existence of other factors, such as infections, food deficiencies, and hereditary influences." He mentions diabetes and its associated cataractous tendency, and calls attention to the fact that defective endocrine function is common in India, probably because of malnutrition.

THOMAS D. ALLEN, M.D.

Brose, L. D.: Congenital Anterior Capsular Cataract. *Am. J. Ophthalm.*, 1922, v, 202.

An entire family, consisting of five persons, developed congenital anterior capsular cataract in both eyes. Three of the women had corneal opacities. In two of the women the capsular cataract was followed later in life by total lens opacity with subsequent liquefaction of the lens fibers. A plausible explanation is that the capsule was invaded by a soluble toxin due to inflammation in some part of the anterior portion of the eye, possibly of the cornea, iris, or pupillary membrane. Three of the author's patients had corneal opacities in both eyes, evidence of previous eye disease.

Brose describes the pathology and gives his opinion regarding the surgical treatment.

THOMAS D. ALLEN, M.D.

Frisch, F.: A Method of Preventing Loss of Vitreous. *Am. J. Ophthalm.*, 1922, v, 81.

In order to prevent or arrest the escape of vitreous by means of a suture it is necessary to act instantly. As a rule it takes too long to pick up the two ends of a thread when escape of vitreous is threatened.

The suture described has proved its efficiency in a number of cataract operations when loss of vitreous seemed imminent.

White silk spool thread, Size B and 25 cm. long, is passed through the eye of the smallest curved needle which will take it. A loop like a single bow knot is tied 10 cm. from one end and drawn out so that a loop only 1 mm. long remains. The needle is inserted into the cornea 1.5 mm. to the temporal side and 2.5 mm. below the upper corneal margin, emerging about 1.2 mm. above its insertion without entering the anterior chamber, and the thread is pulled through until the knot is in contact with the cornea. The needle is then inserted into the

conjunctiva 4 mm. above the limbus, emerging 1.5 mm. above.

With a strabismus hook, the thread between the corneal and the conjunctival insertions is pulled up to form a loop 12 to 15 mm. long so that it cannot obstruct the escaping cataract. The operator is then ready for the incision.

At any time during the operation, if necessary, the wound can be closed rapidly by pulling the long end of the thread. When extraction is completed and the suture is to be tied, the knot can be eliminated by pulling also on the short end of the thread, or it may be left in contact with the cornea, the suture being tied over it.

This suture has been left in for ten to twenty days without causing a reaction and there is no reason why it must be removed before the end of a week at least.

C. CORBIN YANCEY, M.D.

Williamson, F. B. A.: Two Cases of Thrombosis of the Retinal Vein, One Showing a Hole, the Other a Star, at the Macula. *Brit. J. Ophthalm.*, 1922, vi, 67.

In the first case reported microscopic sections showed that the formation of the hole at the macula was due to a subretinal edema. The patient was 62 years old. The failure of vision began fourteen years previously. Teeth had been extracted.

Pain in the head was experienced during the year 1919-20. Severe pain began in August, 1920, and continued to July, 1921, when the eye was excised because of glaucoma. Examination of the excised eye with the loupe revealed a small but definite hole at the macula.

Serial celloidin sections of the disc and macula showed absence of the inner nuclear layer and inner reticular layer. The retinal pigment layer was separated from the inner layer of the choroid, a condition not present in other parts of the specimen. The rods were fairly well preserved, but between them and the pigment layer was a thin layer of structureless material, presumably edematous fluid fixed by the hardening reagents. The outer molecular layer of the perimacular region showed edema.

Two sections nearer the fovea showed absence of the outer nuclear layer. The layer of rods and cones was pushed forward by the accumulation of fluid. In this fluid was a cyst the anterior wall of which was formed by only the external limiting membrane of the retina; that is, the layer of rods over it had disappeared. The area of separation of the retinal pigment layer observed at the macula was also present.

Section at the fovea presented similar characteristics except that the anterior wall of the cyst was not present, thus accounting for the formation of a hole.

Williamson calls attention to the fact that in these sections the cyst was formed, not in the retina, but in the accumulation of edematous material between the external limiting membrane and the retinal pigment layer, and because of the presence of the cyst

the outer layer of the retina appeared to have undergone a degenerative process to which the formation of the hole was due.

The second case reported was that of a patient who had been blind in the right eye for five years. Fourteen days before his admission to the hospital the eye became red and painful. There was no perception of light. The eye was exsclered, frozen, and bisected.

The changes at the macula bore a certain resemblance to those in the first case. The sections showed also a thrombosed vessel on the side of the disc, slight cupping of the disc, and small hemorrhages in the inner layers of the retina. Two-thirds of the distance between the disc and macula a small collection of coagulated fluid was found between the choroid and red and cone layer of the retina. At the macula was a much larger collection of exudate, the retina here showing advanced cystic degeneration which began in the outer reticular layer beyond the macula.

No macular hole was present in this specimen, but the author believes that if the condition had continued a little longer a hole would have been formed by the further degeneration of the retina, and that possibly a cyst would have developed in the subretinal exudate.

In Williamson's opinion the first series of sections supports the theory that a hole at the macula is due to subretinal edema, and that the second series shows degeneration affecting an area of the retina separated from the choroid by a layer of edema. He is unable to state the source of the edema and the reasons why it should be localized at the macular and submacular region, but suggests as a possible explanation that, acting on the retinal veins, the toxic influence shown by the general pathology in both eyes caused thrombosis and, acting on the delicate muscular choroidal capillaries, it caused degeneration of their walls, increased permeability to fluid, and consequent edema. The fluid then diffused or passed by osmosis through the potential space between the rods and cones and the pigment epithelium, preventing the access of nutrient substances from the choro-capillaries so that the hole was formed by degeneration of the suprajacent tissues.

JAMES P. FITZGERALD, M.D.

Finnoff, W. C.: Recurrent Hemorrhages into the Retina and Vitreous of Young Persons. *Am. J. Ophth.*, 1922, 9, 191.

The conclusions drawn are as follows:

1. Recurrent hemorrhage into the retina and vitreous in young persons is probably not a specific disease.

2. Tuberculosis involving the retinal vessels, especially the veins, is one of the common etiological factors.

3. Syphilis is an occasional cause.

4. Focal infection is a possible cause.

5. Hemophilia is not a cause, but might be a contributing factor.

6. The hemorrhages are due to a localized pathologic weakening of the blood vessels. Increased blood pressure and exercise are only exciting causes.

7. The veins are usually attacked.

8. In some cases there is involvement of the retina early in the disease.

9. In most cases the earlier changes occur in the periphery of the eye. If patients were examined in the early stages of the disease we would learn more regarding the pathology.

10. Retinitis proliferans occurs in most cases.

11. The disease is primarily in the retina, and the partial or complete detachment of the retina is due to traction from scar tissue rather than to subretinal hemorrhages from the choroidal vessels, as has been suggested.

12. The prognosis is poor; both eyes usually become affected, and in most cases the vision is markedly diminished.

13. The disease is much more frequent in men. In women it is usually less severe.

THOMAS D. ATLEN, M.D.

Dandy, W. E.: Prechiasmal Intracranial Tumors of the Optic Nerves. *Am. J. Ophth.*, 1922, 9, 170.

Two cases of tumors of the intracranial part of the optic nerve are reported.

In one case there were two bilateral, symmetrical tumors at the optic foramen. Each of these tumors was a psammoma, i.e., a dural tumor, usually considered a dural endothelioma. In the second case there was a single tumor on the left optic nerve at the optic foramen. In both cases there was bilateral loss of vision. The symmetrical tumors entered the orbit through the optic foramen; the other tumor was strictly intracranial.

One was diagnosed clinically; the other was suspected after an earlier diagnosis of optic neuritis; both were found at operation.

In the case with bilateral tumors, all of one tumor and part of the other was removed. Vision was greatly improved as the result.

In the second case the tumor could not be removed because it was under the optic nerve on the side opposite the operative approach. A band of adhesions bound it to the anterior clinoid process, and its incision liberated the nerve from the tumor. Complete restoration of vision resulted.

A very high proportion of intra-orbital optic nerve tumors extend into the cranial chamber. Local operations on the orbital part of the tumors are therefore futile and give the patient a false sense of security until it is too late.

If either a primary intracranial tumor of the optic nerve or a secondary intracranial extension of an intra-orbital tumor is present, only an intracranial operation aiming at the removal of the tumor offers any chance of preserving life or vision.

An operation is proposed, the object of which is to remove the intracranial or the combined intracranial and intra-orbital tumors when both are present.

Dandy states that any brain tumor which can cause a choked disc can be accurately diagnosed and precisely localized. Conversely it can be told with equal accuracy when a tumor is not present. Despite the absence of headache in his case, the diagnosis of an intracranial lesion was reasonably certain because of the transient bilateral extra-ocular palsies which always accompanied the spell of periodic vomiting. The fleeting character of the ocular changes indicated a lesion which varied in size.

The progressive blindness extending over such a long period of time seemed to indicate a tumor, but hydrocephalus was positively excluded by cerebral pneumography, the lateral ventricles being entirely normal. The size of the sella was only slightly greater than normal and the posterior clinoid processes were not destroyed. Therefore the presence of a tumor of any size in this region was almost precluded. Moreover, if a pituitary tumor had been present there would have been evidences of hemianopsia. The presence of a primary optic atrophy could not be questioned; therefore it seemed probable that a tumor was located somewhere along the optic nerves and presumably between the optic foramina and the chiasm.

THOMAS D. ALLEN, M.D.

EAR

Emerson, F. P.: *The Indications for Opening the Mastoid Cortex*. *Boston M. & S. J.*, 1922, clxxvii, 301.

The mastoid cortex may be opened: (1) to remove a pyogenic focus threatening life; (2) to conserve hearing; and (3) to prevent chronic mastoiditis.

In a case of acute middle ear and mastoid involvement it may be safer to operate than to delay, yet in the absence of threatening complications it is better, in the interests of an early dry middle ear and good hearing, to delay operation for eight to ten days until the bone abscess has begun to be walled off by a leucocyte barrier. If operation is performed earlier, deeply placed cells may break down later or reinfection of the middle ear from the original infection in the nasopharynx may take place.

The indications are discussed as follows:

1. *Membrana tympani*. A nipple perforation with a fibrinous exudate in the middle ear or a so-called boggy membrane at the end of a week often indicates a low-grade process with a tendency to become chronic.

2. *Temperature*. This has no diagnostic significance.

3. *Posterior superior canal wall*. Sagging of the wall is perhaps the most common and reliable indication for operation in acute mastoiditis, but an external otitis must first be excluded.

4. *Tenderness over the antrum and the tip of the mastoid*. This in itself is not an indication for operation as it is present in practically all cases of acute congestion of the mastoid, but a swelling back of the tip with tenderness over the emissary vein, especially after disappearance of tenderness over the antrum and the tip of the mastoid, is indicative of deep bone destruction.

5. *Discharge*. If the amount after the eighth day is more than would come from the middle ear, operation is indicated, particularly if the patient is toxic.

6. *Duration*. Any case that does not show signs of improvement after ten days may justify operation to preserve hearing or to prevent a chronic mastoiditis.

7. *Night pain*. This is suspicious.

8. *Leucocytosis*. The presence of a leucocytosis is a help only. It may vary from 10,000 to 18,000, and is chiefly an indication of the patient's resistance. A sudden increase to 25,000 or more, accompanied by a chill, indicates a complication, usually a sinus infection. Polymorphonuclear neutrophils are increased from 70 to 85 to 90 per cent. A sudden drop to 70 per cent shows a loss of resistance. A high polymorphonuclear percentage indicates severity of the infection.

9. *Type of infection*. This is not a definite indication as different persons react differently to the same infection.

10. *Type of mastoid*. The pneumatic type is more apt to undergo resolution; the infantile type is more liable to chronic infection.

In chronic cases the following indications for operation are given:

1. Continued suppuration resisting local treatment and accompanied by anæmia and poor resistance.

2. Chronic discharge with cholesteatoma.

3. Chronic mastoiditis with acute exacerbations in which the hearing is practically gone and treatment is unsuccessful.

4. Chronic mastoiditis with facial paralysis, chronic unilateral headache, labyrinthine or meningeal irritation.

5. Chronic mastoiditis with polypi springing from the promontory and oval window.

O. M. ROTT, M.D.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Francis, R.: A Case of Rhinolith Presenting Unusual Features. *Med. J. Australia*, 1931, 1, 245.

The case reported was that of a male, aged 62 years. Another physician had made a diagnosis of chronic glaucoma of both eyes and referred the patient to the author for a nose and throat examination because he had noticed an offensive odor coming from the nose.

The patient gave a history of nose bleeding in childhood and very occasional colds during which there was a nasal discharge of thick yellow material and his hearing became affected. The colds were not of long duration. There was no history of nasal obstruction, headaches, or nasopharyngeal discharge, and no loss of the sense of smell or taste.

Upon examination of the nose on the left side a large stony mass was found in the middle meatus overhanging the inferior turbinate. The inferior turbinate was partially atrophied. The mass appeared to be fixed, was covered with foul-smelling mucoid debris, and terminated in a large lobulated end hanging into the nasopharynx.

The X-ray showed a rhinolith of the nasal cavity and dullness of both antra. The antra were punctured and found to be clear.

The rhinolith was removed by breaking it into pieces. It measured $6\frac{1}{4}$ by $1\frac{1}{4}$ cm., and weighed 12.8 gm. Sections made after decalcification showed a large amount of fibrin intermingled with blood clot. This suggests that the stone had been formed by calcification of a blood clot. It was larger than any previously reported.

F. K. HANDEL, M.D.

Hinsberg, V.: The Operative Treatment of Ozena with Lead-Plate Sutures (Zur operativen Behandlung der Ozena durch die Plattenstich-Methode). *Münchener J. Ohrenk.*, 1911, IV, 1269.

Laurenz-Mueller and Halle have pointed out that ozena may be benefited and even cured by narrowing the nose. By tamponade of the antrum for weeks or months the medially displaced nasal wall may be caused to adhere to the septum. This treatment, however, is distressing because of the length of time required for it and because it often leads to excessive narrowing. Hinsberg therefore sought to use the lead-plate suture method instead. The lateral nasal walls were mobilized and then drawn together by means of laminated wire sutures. After the operation the secretions were removed by nasal flushing and soon disappeared. Scab formation and odor ceased immediately. After two or three months and renewed opening of the antrum the plates were removed without difficulty by cutting the wires in the nose.

Of twenty-six cases treated in this manner twenty-four were clinically cured. The efficacy of the operation is to be explained only by the assumption that the cause of the ozena is abnormal breadth of the nasal lumen.

HARMS (Z).

Denker, A.: Further Experiences in the Treatment of Typical Fibromata of the Nasopharynx (Weitere Erfahrungen neber die Behandlung der typischen Nasenachsendillromen). *Münchener J. Ohrenk.*, 1921, IV, 1925.

Since reading a paper before the International Laryngological Congress at Berlin the author has had occasion to operate on twelve additional cases of very large nasopharyngeal fibromata, the histories of which are here reported. For cases in which the growth cannot be removed by either the endonasal or the oral route he recommends operation by the maxillary route under general anaesthesia induced by intrapharyngeal intubation. In this procedure the antrum of highmore is opened after division of the fold of reflection between the gum and the cheek and sufficient stretching and resection of the facial and median wall. The hemorrhage caused by the removal of the tumor can be controlled by packing. The oral wound is always closed with a primary suture.

VON TAPPEINER (Z).

THROAT

Crowe, S. J., and Breitstein, M. L.: Papilloma of the Larynx in Children: A Report of Eleven Cases. *Arch. Surg.*, 1922, IV, 215.

Papilloma of the larynx in children, though rare (the incidence being approximately 1:1,000 in those under 14 years of age), is the most common type of new growth in the larynx in children and very difficult to cure. The difficulties of treatment by operative removal are due to: (1) the small lumen of the larynx and trachea in children; (2) the tendency of the growth to recur locally after excision and to transplant itself to adjoining areas of mucous membrane which were free from growth before the operation; and (3) the necessity for tracheotomy in nearly every instance.

While in some cases the growth disappears spontaneously, there is too much danger of suffocation to warrant delay of treatment.

An early tracheotomy is necessary. The growth should be removed through the mouth and under direct vision. A Jackson laryngoscope or a swinging laryngoscopic apparatus may be used. Care must be taken not to injure the surrounding membrane. Even sponging with gauze or cotton may result in spread of the growth. Actual chemical cauterization

should be avoided; it will not prevent recurrence and will cause scarring or stricture. Tracheotomy, removal of the growth when necessary, the careful use of the roentgen ray and radium, general hygienic measures, and above all else, patience, are the essential features in the treatment of papilloma of the larynx in children.

O. M. Kott, M.D.

Crile, G. W.: Laryngectomy. *Surg., Gynec. & Obst.*, 1922, xxxiv, 305.

Crile states that the results in his first series of cases of laryngectomy were very poor. Since the following technique was adopted, however, he has performed thirty-five total laryngectomies with only two deaths. One patient is well twenty-eight years after the operation.

The operation is divided into two stages. At the first stage under local anesthesia or under analgesia induced with gas and oxygen the isthmus of the thyroid is cut through, the lobes are turned to either side, and the larynx and the upper part of the trachea are completely exposed. The thyroid gland is then separated from the trachea and retracted, the trachea is completely separated from the œsophagus, and iodoform gauze is packed behind the trachea and at the side of the larynx down to the carotid artery and nerve. The gauze fixes the trachea, and the mediastinum is walled off against infection during the second stage, the laryngectomy.

At the time of operation a duodenal tube is introduced through the stomach into the duodenum. By this means it is possible to feed the patient and to increase his weight during convalescence.

J. C. BRASWELL, M.D.

Woods, R.: Laryngectomy. *Surg., Gynec. & Obst.*, 1922, xxxiv, 297.

One of the greatest obstacles to the success of laryngectomy was removed by the introduction of the nasal tube for feeding purposes.

The author divides his operations into two classes: those in which the larynx alone was involved and those in which the hypopharynx or the gullet proper was also involved. In the latter class of cases the results were very poor.

There were twenty-one cases in which the larynx alone was involved. Nine of these patients are alive from three to nine years after the operation.

The loss of the larynx does not seem to cause great discomfort. Swallowing is not interfered with and the tendency to bronchitis is no greater than in the normal person.

The problem of speech is overcome by teaching the patient to gulp air into the œsophagus and allow it to escape as a belch. The physical difficulty is less when the larynx has been removed than in normal people because the cricoid cartilage ordinarily remains in close contact with the posterior wall of the gullet and it requires much effort on the part of the mouth to overcome its resistance. In order to instruct the patient, a draught of citric acid solution followed by sodium bicarbonate is adminis-

tered. The carbon dioxide evolved sooner or later escapes with a noise that makes a perfect substitute for the voice, and the patient is instructed to watch his opportunity and to form a vowel in its transit. When this has been accomplished, the patient may easily acquire the habit of keeping an air reservoir in the œsophagus in order that he may speak audibly and continuously.

The operative technique advocated is described as follows:

Two incisions are made, one across the neck immediately below the hyoid bone to expose the thyrohyoid membrane, and a median vertical incision carried from this incision to the suprasternal notch. The two triangular flaps thus outlined are reflected outward to expose the extrinsic muscles of the larynx. The latter are lifted on blunt dissectors and cut away, the framework of the larynx being left bare. The superior laryngeal vessels are secured at the point where they traverse the thyrohyoid membrane. The cricothyroid and inferior laryngeal vessels are similarly dealt with. The inferior constrictor fibers are severed at their insertion into the posterior border of the thyroid. This exposes the mucous membrane of the pharynx.

Before the pharynx is opened the wound is treated with tincture of iodine and the recesses are packed with gauze dipped in the solution. The pharyngeal mucous membrane is snipped through along the border of the thyroid cartilage, the thyroid membrane and the mucous membrane at the base of the tongue in the vallecula being cut. Following around the same structure on the opposite side in inverse order, the lower corner of the thyroid cartilage is reached, when the whole larynx lies free in the wound.

The next step consists in incising the anterior wall of the gullet in order to connect the beginning and the end of the incision just described. This should be done as high up as possible without entering the diseased area. The higher the wall above and behind the posterior wall of the trachea, the less chance there is of a fistula in the food passages and the less trouble it will give if it develops. The mucous membrane of the gullet is next stripped back from behind the cricoid cartilage. The larynx is then held only by its connection with the trachea and a few transverse strokes of the scalpel suffice to sever it completely.

The trachea is stitched to the skin with chromicized catgut or silkworm gut sutures. The edges of the pharynx are inverted and stitched to one another and to the base of the tongue with twenty-one day catgut. A mattress suture is often best for the skin flaps. The latter should be made to cover the raw surface of the anterior wall of the gullet as completely as possible. Finally the superficial tissues are united with silkworm gut sutures.

Before closure of the pharynx a feeding tube is inserted and stitched to the posterior wall of the pharynx, and a drainage tube is inserted into the pharynx and stitched to the side of the feeding tube.

Only very light dressings are used; bandages are unnecessary. A tracheostomy tube should be inserted and kept in place until all crust formation at the tracheal opening has disappeared.

J. C. BRASWELL, M.D.

MOUTH

Pettit, J. A.: Some Considerations of Cleft Palate Surgical Technique. *Neck and Med.*, 1911, 133, 11.

The average cleft palate represents not so much a deficiency of tissue as a displacement of anatomical structures. In the usual defective palate the tissues are so altered that their direction is changed and they assume the form of a gable roof. By reason of this upward obliquity, a gap is left at the top, the width of which is in direct ratio to the degree of obliquity. In very young babies there is a certain deficiency of tissue which usually lessens as the child grows older. In proper reconstruction, attempts are made to transfer sufficient tissue from the "gables" to form a "flat roof" for the oral cavity.

The flaps used in constructing the horizontal roof of the oral cavity should be well nourished and of sufficient strength to stand the strain to be placed upon them.

The edges must be brought together without the least tension. Tension sutures frequently cut through the soft tissues.

To relieve tension in the posterior portion of the palatal cleft the author places two or three silver wires through the muscular velum some distance from the suture line, fastens them on either side to a perforated lead plate, and draws them taut to produce a slight bulging of the suture line. The lead plates act as a splint on the muscles and prevent the silver wires from cutting through the soft tissues.

In Pettit's opinion the harelip operation should be done very early in infancy and the cleft palate operation should be performed before the child acquires the habit of imperfect speech.

J. C. BRASWELL, M.D.

Peterer, F.: Glioma of the Tongue (Ueber Glioma linguae). *Ztschr. f. Path.*, 1911, XLVI, 214.

The author describes the case of a female infant 6 weeks of age who had a tumor the size of a pigeon egg in the right half of the lung on the under side. The growth was removed by operation, but three months later reappeared and was thereupon again removed with the thermocautery. The further history of the case is unknown.

Histologically the tumor consisted of neuroglia tissue without ganglion cells. Genetically it would be classified with the teratomata, and with a subgroup of these tumors which contain only one variety of tissue. Mention is made also of the mixed tumors of the base of the skull covering the nasopharynx.

BRONF (Z.)

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

- Operating technique as adapted to private homes. C. G. RANKIN. *Trained Nurse & Hosp. Rev.*, 1922, lxxviii, 210.
Glucose and alkalies in surgery. A. WEEKS and L. BERNES. *California State M. J.*, 1922, xx, 100.
The shortening of postoperative convalescence. H. E. CLAREMONT. *Lancet*, 1922, ccii, 427.

Aseptic and Antiseptic Surgery

- The theory of disinfection. L. T. FAIRHALL. *Mil. Surgeon*, 1922, i, 295.
A note on the sterilization of surgical instruments. F. S. SANDERSON. *J. Lab. & Clin. Med.*, 1922, vii, 360.

Anæsthesia

- Anæsthesia and its use. D. E. CARAVIAS. *Semana méd.*, 1922, xxix, 144.
Recent work on anæsthetics. J. BLOMFIELD. *Practitioner*, 1922, cviii, 163.
A modification of the Flagg anæsthesia apparatus. R. DOUGLASS. *J. Am. M. Ass.*, 1922, lxxviii, 648.
A combined anæsthetic apparatus. F. E. SHIPWAY. *Lancet*, 1922, ccii, 490.
Opportunities for the nurse as an anæsthetist. E. M. GREENHEIM. *Trained Nurse & Hosp. Rev.*, 1922, lxxviii, 214.
Post-anæsthetic vomiting. V. MACDONALD. *Med. J. Australia*, 1922, i, 240.
Administration of ether by the use of a simple mechanical ether dropper. C. L. A. ODÉN and A. FOSHEE. *J. Am. M. Ass.*, 1922, lxxviii, 803.
Anæsthesia for nose, throat, and abdominal surgery by nitrous oxide-oxygen-chloroform-ether combination. H. E. G. BOYLE. *Canadian M. Ass. J.*, 1922, xii, 171.
Nitroxigenized ether vapor. A. F. ERDMANN. *N. York State J. M.*, 1922, xxii, 134.
Nitrous oxide and oxygen continuous analgesia and anæsthesia with rebreathing in obstetrics; the technique of its administration and a summary of the results. A. E. RIVES. *Am. J. Obst. & Gynec.*, 1922, iii, 296.

- Local anæsthesia. K. GERSON. *Med. Klin.*, 1922, xviii, 109.
Local anæsthesia in dental, oral, nose, and throat surgery. H. E. TOMPKINS. *N. York M. J.*, 1922, cxv, 270.
Butyn, a new synthetic local anæsthetic: report concerning its clinical use. BULSON. *Am. J. Clin. Med.*, 1922, xxix, 171.
Inguinal herniotomies under local anæsthesia (apothésine). W. V. KANE. *Indian J. M.*, 1922, iii, 3.
Inguinal herniotomy under regional anæsthesia: a new method of field block. G. LABAT and W. R. MEEKER. *Surg., Gynec. & Obst.*, 1922, xxiv, 398.
Questionable novocaine dermatitis among dentists. H. K. GASKILL. *Dental Cosmos*, 1922, lxiv, 310.
Novocaine dermatitis. J. V. KLAUDER. *Dental Cosmos*, 1922, lxiv, 305.
Anæsthesia in the extraction of teeth. A. KNEUCKER. *Wien. klin. Wchnschr.*, 1922, xxv, 25.
Spinal anæsthesia. K. KRASSOWITOFF. *Monograph*, 1921 (Russian).

Surgical Instruments and Apparatus

- A knife for harelip and cleft palate operations. B. B. CATES. *Am. J. Surg.*, 1922, xxxvi, 70.
A new duodenal tube. L. W. KOHN. *Med. Rec.*, 1922, ci, 499.
A new intravenous needle. L. LANDMAN. *J. Am. M. Ass.*, 1922, lxxviii, 805.
A rubber stopper for containers used in preparing blood serum for intraspinal injections. E. D. OSBORNE. *J. Am. M. Ass.*, 1922, lxxviii, 580.
Improved needle and method for citrated blood transfusions. D. B. POND. *J. Am. M. Ass.*, 1922, lxxviii, 650.
Syringe for Schick testing. C. C. YOUNG and M. CROOKS. *J. Am. M. Ass.*, 1922, lxxviii, 651.
An operating lamp. B. LANG. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Ophth., 19.
A simple inflation apparatus. W. MACMILLAN. *J. Am. M. Ass.*, 1922, lxxviii, 889.

SURGERY OF THE HEAD AND NECK

Head

- Studies in the traumatic fractures of the cranial bones: I. Edema of the brain. II. Bruises of the brain. C. W. APPELBACH. *Arch. Surg.*, 1922, iv, 434. [2]
A case of cerebral injury and cranioplasty. R. F. YOUNG. *Glasgow M. J.*, 1922, n. s. xv, 163. [2]
Acute brain injuries. E. W. JACKSON. *Kentucky M. J.*, 1922, xi, 191.

- Abscess of the temporal lobe with acute meningococcal meningitis of auricular origin. A. THOUVENEL and others. *Bul. et mém. Soc. de chir. de Par.*, 1922, xlviii, 334.
The indications for operation in the treatment of injuries involving the brain. D. MUNRO. *Boston M. & S. J.*, 1922, clxxvi, 342. [2]
Anterior branch of the middle meningeal artery; its anatomical tunnel and surgical importance. J. E. ROWAN. *Illinois M. J.*, 1922, xli, 205.

Operations on the choroid plexus of the lateral ventricle and the open fenestration of the corpus callosum in infantile hydrocephalus. A. LACROIX. *Bull. v. Clin. Otol.*, 1911, CLV, 1.

Central fever following operations on the brain and spinal cord. S. ALBERTA D. Zuckl. I. d. pos. Neurol. u. Psychiat., 1912, LXXXV, 109.

Cyst of the cerebellum. C. A. FERGUSON. *Ann. Surg.*, 1912, LXXV, 376.

Brain tumor with i w localizing symptoms. C. A. FERGUSON. *Ann. Surg.*, 1912, LXXV, 376.

Endothelioma of the brain. D. MARAGLIANO. *Arch. Ital. di chir.*, 1911, V, 1.

Route to the hypophysis through the sphenoidal sinus. W. MINTZ. *Arch. f. klin. Chir.*, 1911, CLIX, 110.

A peculiar form of pituitary disturbance. E. APPELBAUM. N. York M. J., 1911, LXX, 419.

Surgical anatomy of the trigeminal nerve. A. B. KANAVET and L. E. DAVIS. *Surg., Gynec. & Obst.*, 1912, XXIV, 323.

Anatomical study of injection of the second and third divisions of the trigeminal nerve. F. C. GRANT. *J. Am. M. Ass.*, 1912, LXXVIII, 794.

A case of sarcoma of the cheek and maxilla with diffuse secondary growths. E. D. D. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1911, VI, Sect. Laryngol., 11.

Secondary parotitis. F. S. LYNN. *Surg., Gynec. & Obst.*, 1911, XLIV, 367.

The surgical treatment of habitual luxation of the mandible: a new operative technique. G. F. KONJETZKY. *Arch. f. klin. Chir.*, 1911, CXVI, 461.

Osteoperiostitis of the mandible. S. L. SILVERMAN. *Dental Cosmos*, 1911, LXIV, 306.

A case of sarcoma of the mandible in an infant. S. P. MEMMERY. *Lancet*, 1911, CCL, 311.

Ankylosis of the jaw. R. H. GILPATRICK. *Boston M. & S. J.*, 1911, CLXXVI, 374.

Alfideve bandaging as an adjunct to intermaxillary wiring. S. L. SILVERMAN. *Dental Cosmos*, 1911, LXIV, 318.

Dento-facial maldevelopments and their correction. A. P. ROSSER. *Arch. Pediat.*, 1911, XXIX, 137.

Facial swellings: their etiology, diagnosis, and treatment. L. HARRIS. *Dental Cosmos*, 1911, LXIV, 300.

Neck

The end results of the surgical treatment of forty-eight cases of tuberculous cervical adenitis. F. H. LARLEY and H. M. CHUTE. *Boston M. & S. J.*, 1911, CLXXVI, 460.

A case of congenital cystic lymphangioma of the neck. V. U. GIACACCI. *Riforma med.*, 1911, XXXVIII, 116.

A case of hypothyroidism in an infant. A. L. SINGER. N. York M. J., 1911, LXX, 376.

A plea for the early diagnosis and treatment of hyperthyroidism. C. W. DOWNES and C. D. ENFIELD. *Kentucky M. J.*, 1911, XX, 196.

The early diagnosis and treatment of hyperthyroidism. E. GORTSCH. N. York M. J., 1911, LXX, 197.

Pathogenesis, symptomatology, and treatment of hyperthyroidism. I. BRAM. N. York M. J., 1911, LXX, 198.

Endemic goiter in British Columbia. H. E. WALLER. N. York M. J., 1911, LXX, 199.

The solution of the endemic goiter problem. H. G. SLIMAN. *South. M. J.*, 1911, XV, 227.

Goiter: indications for surgical treatment. J. D. McEACHREN. *Canadian Pract. & Rev.*, 1911, XLV, 11.

The surgical treatment of goiter. J. R. WATKIN. *Kentucky M. J.*, 1911, XX, 108.

The causality of the so-called metastatic colloid struma. K. GUTH. *Zentralbl. f. allg. Pathol. u. pathol. Anat.*, 1911, XXII, 257.

Observations on the diagnosis and treatment of toxic goiter. L. W. FRANK. *Kentucky M. J.*, 1911, XX, 109.

The importance of early diagnosis in toxic goiter. R. M. HOWARD. *J. Oklahoma State M. Ass.*, 1911, XV, 76.

The sympathetic theory of exophthalmic goiter. E. SEITZ. *Zentralbl. f. innere Med.*, 1911, XLII, 840.

The surgical treatment of exophthalmic goiter. W. M. TROTSKY. *Monograph*, 1911.

The surgical treatment of exophthalmic goiter. W. H. C. ROMANTZ. *Lancet*, 1911, CCL, 371.

Carcinoma in a lateral aberrant thyroid gland: report of a case. L. GREENFELDER and R. S. BETTMAN. *J. Am. M. Ass.*, 1911, LXXVIII, 179.

An unusual postoperative phenomenon in thyroidectomy. A. K. LADDIE. *Indian M. Gaz.*, 1911, LVII, 95.

The effect of strumectomy on the metabolism. VON REDWITZ and GRAPE. *Zentralbl. f. Chir.*, 1911, XLVII, 1871.

SURGERY OF THE CHEST

Chest Wall and Breast

A case of stab wound of the chest wall. B. V. VARADACHARI. *Madras M. J.*, 1911, V, 20.

Diaphragmatic hernia. D. L. BORDEN. *Ann. Surg.*, 1911, LXXV, 317.

Diaphragmatic hernia. B. N. WADE. *Northwest Med.*, 1911, XII, 51.

The diagnosis of diaphragmatic hernia. BOUQUET and others. *J. de med. et d'hyg.*, 1911, VI, 24.

A contribution to the knowledge of diaphragmatic hernia complicated by a bleeding ulcer. I. BOWEN. *Arch. f. klin. Chir.*, 1911, CXVI, 461.

Physiopathologic diagnosis of diaphragmatic hernia in two clinical cases of diaphragmatic constriction on the left side. J. C. CASTELLANI. *Siglo med.*, 1911, LIII, 37.

A case of congenital diaphragmatic hernia in a child three months old. LEFORT. *Bull. et mem. Soc. de chir. de Par.*, 1911, XLVII, 179.

False diaphragmatic hernia developing after a gunshot injury. H. LORELL. *Arch. f. klin. Chir.*, 1911, CXVI, 346.

The practical importance of thoracoscopy in surgery of the chest. H. C. JACOBSEN. *Surg., Gynec. & Obst.*, 1911, XXXIV, 289.

A case of compression of the thorax. J. VAN WORMEN. *Nederl. Tijdschr. v. Geneesk.*, 1911, LV, 2911.

Resections of the thorax in cases of old empyema of the pleura. WILDEGASS. *Arch. f. klin. Chir.*, 1911, CXVI, 444.

Mammary secretion in tabetic crises. H. BIBERSTEIN. *Klin. Wchschr.*, 1911, I, 68.

Benign lesions of the female breast for which operation is not indicated. J. C. BLOOMSDOON. *J. Am. M. Ass.*, 1911, LXXVIII, 859.

Inflammatory tumors of the breast. E. GLASS. *Deutsche med. Wchschr.*, 1911, XLVIII, 1382.

Diffuse fibromatosis of the mammary gland in the male. A. COMBLEN. *Deutsche Zschr. f. Chir.*, 1911, CLXIII, 364.

Tumors of the breast. C. E. BLACK. *Illinois M. J.*, 1911, CLII, 191.

Carcinoma of the breast, with a consideration of pre-cancerous conditions. R. B. DAVIS. *J. Am. M. Ass.*, 1911, LXXVIII, 779.

[10]

- Cancer of the breast: the results in 218 operations. W. E. SHEPPARD. *J. Lancet*, 1922, n. s. xlii, 75. [11]
A permanent cure of operated cancer of the breast with and without prophylactic mastectomy. F. VON DER HEITEN. *Muenchen. med. Wchnschr.*, 1922, lxi, 13.

Trachea and Lungs

- A case of (?) arrest of development of the trachea. C. A. S. ROBERT. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 13.
A peculiar case of tracheal stenosis and its cure by retrograde sounding. M. WITT. *Monatsschr. f. Ohrenh.*, 1921, lv, 2718.
Abscess of the lung. L. CLENDENING. *Laryngoscope*, 1922, xxxii, 128. [11]
The pathology of lung suppuration. P. W. ASCHNER. *Ann. Surg.*, 1922, lxxv, 321.
Resection of the lung for suppurative infections, with a report based on thirty-one operative cases in which resection was done or intended. H. LILIENTHAL. *Ann. Surg.*, 1922, lxxv, 257. [12]
A case of pulmonary tuberculosis in a child diagnosed with difficulty from interlobar empyema. G. KARSTROEM. *Hygiea*, 1921, lxxviii, 517. [13]
Artificial pneumothorax in tuberculosis. F. L. JENNINGS. *J. Lancet*, 1922, n. s. xlii, 115.
A clinical study of fifty cases of pneumothorax. W. S. LEMON and A. L. BARNES. *J. Iowa State M. Soc.*, 1922, vii, 81.

- Extra-pleural plugging in tuberculosis of the lungs. G. BAAS. *Muenchen. med. Wchnschr.*, 1921, lxxviii, 1582.
Primary cancer of the lung. A. CRAMER and C. SALOZ. *Rev. méd. de la Suisse Rom.*, 1922, xlii, 160.
Gaseous resorption and the maintenance of sub-atmospheric pressure in the pleura. E. RIST and A. STROHL. *Presse méd., Par.*, 1922, xxx, 69. [13]
Thoracic foreign body causing pleural suppuration. CHAPPEL. *J. de radiol. et d'électrol.*, 1922, vi, 74.
Echinococcus of the pleura. L. POROVIĆ. *Liječ. vjesnik*, 1921, xliii, 254.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

- Hæmatoma and abscesses of the anterior abdominal wall. BOPPE. *J. de chir.*, 1922, xix, 245. [14]
Some technical points in the treatment of hernia. A. RICHARD. *Presse méd., Par.*, 1922, xxx, 301.
The operative treatment of cases of strangulated obturator hernia. F. FRANKE. *Zentralbl. f. Chir.*, 1921, xlviii, 1893.
The radical cure of inguinal hernia in children: with special reference to the embryonic rests found associated with the sacs. A. MACLENNAN. *Brit. J. Surg.*, 1922, ix, 244. [15]
Relapse after Bassini's radical operation. A. ŠEMPER. *Liječ. vjesnik*, 1921, xliii, 244.
A simple means of differentiating between strangulated hernia and hydrocele in infants. R. HESS. *Fortschr. d. Med.*, 1921, xxxix, 942.
A case of radical cure of irreducible scrotal hernia. F. J. W. PORTER. *Indian M. Gaz.*, 1922, lxxvii, 98.
A femoral hernia of unusual size. G. KEYNES. *Lancet*, 1922, ccii, 429.
Proximate and remote results of the Parlavercchio radical femoral herniotomy. L. DE LUCA. *Policlin., Rome*, 1922, xxix, sez. chir., 141.

- Foreign bodies within the respiratory tract. M. H. KEEBS. *J. Indiana M. Ass.*, 1922, xv, 28.
A rare case in which a bone remained for eight years in the inferior ramus of the left bronchus. N. KORNILOWITSCH. *Verhandl. d. path. Gesellsch., Petrograd*, 1920. [13]

Heart and Vascular System

- Repair of punctured wounds of the heart, with the report of a case. F. WARNER. *Internat. J. Surg.*, 1922, xxv, 80.
The fluoroscope in the diagnosis of diseases of the heart. L. F. BISHOP. *Med. Rec.*, 1922, ci, 489.

Pharynx and Œsophagus

- The closing of defects after operations on the pharynx. A. JIRÁSEK. *Časop. lékař. česk.*, 1921, lx, 781. [14]
Local spasm of the Œsophagus and impairment of deglutition following local injury of the pharyngeal and Œsophageal mucosa. A. J. CARLSON. *J. Am. M. Ass.*, 1922, lxxviii, 784.
Congenital atresia of the Œsophagus. H. G. WILLARD. *J. Am. M. Ass.*, 1922, lxxviii, 649.
Finding of the tract in severe forms of stenosis of the Œsophagus. A. SEIFFERT. *Monatsschr. f. Ohrenh.*, 1921, lx, 1634. [14]
Nine cases of pulsion diverticulum (Zenker). V. SCHMIDT. *Hosp.-Tid.*, 1921, lxxv, 801, 817.
A pedunculated lipoma of the Œsophagus. P. P. VINSON. *J. Am. M. Ass.*, 1922, lxxviii, 801.

Miscellaneous

- Physiological rationale for intrathoracic surgery. J. L. YATES. *Wisconsin M. J.*, 1922, xx, 510.
The surgical treatment of inflammations of the thorax and its viscera. W. JEHN. *Jahresb. f. aerzt. Fortbild.*, 1921, xii, 1.
Hypertrophy of the thymus gland. H. E. UTTER. *Rhode Island M. J.*, 1922, v, 210.

- The nerve supply of the parietal peritoneum and sub-peritoneal tissues. V. Z. COPE. *Lancet*, 1922, ccii, 415.
Oxygen inflation of the peritoneal cavity in tuberculous exudative peritonitis. A. STEIN. *J. Am. M. Ass.*, 1922, lxxviii, 718.
Peritoneal tuberculosis and its treatment. I. MAIXNER. *Liječ. vjesnik*, 1921, xliii, 209.
The treatment of the exudative form of peritoneal tuberculosis with pneumoperitoneum. SORGO and FRITZ. *Med. Klin.*, 1921, xvii, 1513.
Some preventable causes of adhesions. P. W. WILLIS. *Northwest Med.*, 1922, xxi, 81.
A peculiar accident during the application of a pneumoperitoneum. A. LOREY. *Muenchen. med. Wchnschr.*, 1922, lxi, 86.

Gastro-Intestinal Tract

- Food in the digestive tract. L. W. KOHN. *N. York M. J.*, 1922, civ, 276.
Gastrostomy by reconstruction of the ligamentum hepatogastricum by means of the free transplantation of fascia. H. HAVLICEK. *Zentralbl. f. Chir.*, 1921, xlviii, 787.
The diagnosis of diseases of the stomach. M. E. REHFUSS. *J. Med. Soc. N. Jersey*, 1922, xix, 71.

A roentgenological review of 100 gastro-intestinal examinations. M. F. Dwyer. *Northwest Med.*, 1922, xvi, 24.

Recent conceptions of stomach physiology and the genesis of gastric pain. R. MAUER. *Edinburgh M. J.*, 1922, n. s. xviii, 114.

Spasm and stenosis of the pylorus in the roentgen picture. W. BAUERMEISTER. *Arch. f. Verdauungskr.*, 1921, xxviii, 313.

Pyloric stenosis. C. R. SPIVER. *Nebraska State M. J.*, 1922, viii, 80.

Congenital hypertrophic pyloric stenosis. J. A. GRAHAM. *Florida M. J.*, 1922, xli, 213.

Congenital hypertrophic pyloric stenosis. F. D. WILSON. *Virginia M. Month.*, 1922, xlviii, 625.

The surgical treatment of congenital hypertrophic pyloric stenosis. S. McGUIRE. *Virginia M. Month.*, 1922, xlviii, 699.

Hæmatemesis: report of a case of undetermined origin successfully treated by gastro-enterostomy. CRITCHLOW. *J. Am. Inst. Homœop.*, 1922, xiv, 523.

The determination of the indication in acute gastric and duodenal hæmorrhages. H. FISSTER. *Arch. f. Verdauungskr.*, 1921, xxviii, 337.

A contribution to the diagnosis and etiology of gastric and duodenal ulcers with special reference to their recurrence at certain yearly periods. P. COHNHEIM. *Arch. f. Verdauungskr.*, 1921, xxviii, 314.

Important points in the differential diagnosis of gastric ulcer and carcinoma. H. S. WILSON. *Minnesota Med.*, 1922, v, 162.

A contribution to the pathogenesis of gastric ulcer. A. L. MINNER. *Arch. españ. de enfem. d. apar. digest.*, 1922, v, 129.

Pathologico-anatomical and experimental studies in the pathogenesis of chronic gastric ulcer. K. NICOLAISEN. *Deutsche Ztschr. f. Chir.*, 1921, clxvii, 145.

Opinions concerning the nature of peptic gastro-duodenal ulcers. G. R. GRUBER and E. KRATZKESEN. *Deutsche med. Wchnschr.*, 1921, xlvii, 1359.

Gastric and duodenal ulcer. A. A. MATTHEWS. *Northwest Med.*, 1922, xvi, 74.

The importance of the acid content of the gastric juice in the etiology, symptomatology, and treatment of gastric and duodenal ulcers. A. E. MILLS. *Med. J. Australia*, 1922, i, 313.

Tabetic crises and associated gastric ulcer. B. B. CROSBY. *Med. Clin. N. Am.*, 1922, v, 1161.

Acute perforated ulcer of the stomach or duodenum. G. D. STEWART and W. H. BARBER. *Ann. Surg.*, 1922, lxxv, 349.

Acute perforation of gastric and duodenal ulcers respectively into the free peritoneal cavity. I. CYKOR. *Gyógyszerl.*, 1921, 184, 398, 612.

Acute perforation of ulcer of the stomach and duodenum. T. BRUNNER. *München. med. Wchnschr.*, 1922, lxxix, 77.

Perforation of a gastric ulcer into the left ventricle of the heart. L. SALAMONY. *Zentralbl. f. allg. Pathol. u. pathol. Anat.*, 1922, xxxii, 125.

Points in the treatment of gastric ulcer. D. WALSH. *Med. Press*, 1922, n. s. cclii, 118.

The medical treatment of gastric ulcer. G. W. BOLRICK. *Pacific Coast J. Homœop.*, 1922, xxxviii, 76.

The treatment of perforated gastric ulcer with the formation of a sulphureic gas abscess (sulphureus pyropneumothorax). R. STAHL. *Deutsche med. Wchnschr.*, 1922, xlviii, 115.

The present and future of the surgery of gastric ulcer. V. SCHUMMNER. *Klin. Wchnschr.*, 1922, i, 5.

The treatment of gastric ulcer. B. MOYNHAN and A. J. WALTON. *Lancet*, 1922, xlvii, 167.

The treatment of peptic ulcer. G. A. MATTISON. *Rhode Island M. J.*, 1922, v, 297.

Resection or gastro-enterostomy in cases of gastric ulcer distant from the pylorus? F. ROSENBAUM. *Zentralbl. f. Chir.*, 1921, xlviii, 1354.

Jejunostomy in gastric lesions. ALKAN. *Deutsche med. Wchnschr.*, 1921, xlvii, 1111.

Uremia following gastro-enterostomy—eight cases. W. J. TECKER. *Wisconsin M. J.*, 1922, xx, 218.

Longitudinal resection of the lesser curvature of the stomach in the treatment of gastric ulcer. F. NEUGRAEFER. *Zentralbl. f. Chir.*, 1922, clx, 48.

The extirpation of the gastric antrum. K. H. BACER. *Zentralbl. f. Chir.*, 1922, xlviii, 1889.

Acute perforation of a cancer of the pylorus, gastro-enterostomy. MIGENIAC. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 211.

Gastroscopy with the ligamentum teres of the liver as a preliminary operation for the roentgen treatment of certain gastric carcinomata. E. KREUTER. *Zentralbl. f. Chir.*, 1922, xlv, 160.

Myomata of the stomach. N. J. KUSNEZOWSKI. *Ju bilensky Shorn. J. J. Grekow*, 1921, 4, 78.

Sarcoma of the stomach. W. J. GILLETTE. *Med. Rec.*, 1922, cl, 360.

Postoperative intra-abdominal hernia. C. H. MAYO and J. A. H. MAGGON, JR. *Arch. Surg.*, 1922, lv, 124.

Chronic intestinal stasis. J. G. YOUNG. *Illinois M. J.*, 1922, xli, 201.

The diagnosis of tuberculous ulcer of the intestine. The demonstration of occult blood and tubercle bacilli in the stool. W. LOLL. *Beitr. z. klin. d. Tuberk.*, 1922, xlviii, 209.

Inflammatory tumors of the intestine. W. KORTE. *Arch. f. klin. Chir.*, 1921, cxviii, 128.

A case of torsion of the small intestine. H. T. ILLINGWORTH. *Med. Press*, 1922, n. s. cxlii, 178.

Chronic intussusception. H. H. SCHLINK. *Med. J. Australia*, 1922, i, 270.

An aid in the differential diagnosis between acute toxic and acute mechanical ileus. H. T. WIKLE. *Internat. J. Surg.*, 1922, xxxv, 90.

Acute intestinal ileus. H. B. ZIMMERMAN. *Minnesota Med.*, 1922, v, 156.

The technique of the exclusion of benign stenoses of the papilla of Vater. H. ALTEMEYER. *Beitr. z. klin. Chir.*, 1922, cxv, 195.

Individual duodenal X-ray demonstration: three case interpretations. H. W. CROSER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 404.

Diverticula of the inferior angle of the duodenum diagnosed by the X ray. R. FEISLEY. *J. de radiol. et d'électrol.*, 1922, vi, 69.

Chronic duodenal ileus. P. LOCKHART-MUMFERY. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Proct., 36.

Peptic ulcers of the duodenum and jejunum. G. KELLING. *Arch. f. Verdauungskr.*, 1921, xxviii, 347.

Perforated ulcers of the duodenum, a report of fifteen consecutive cases. E. C. BRUNNER. *Surg., Gynec. & Obst.*, 1921, xxxiv, 370.

Contributions to the roentgenological aspects of duodenal ulcer. T. BARSONY. *Arch. f. Verdauungskr.*, 1921, xxviii, 173.

Carcinoma papillæ duodenalis. W. J. DOBRZOWSKI. *Nowy Chir. Arch.*, 1921, i, 31.

The pathology of Meckel's diverticulum; a case of Littre hernia. A. G. MANIMONITCH. *Nowy Chir. Arch.*, 1921, i, 81.

A case of inflammation of Meckel's diverticulum caused by a foreign body. A. HENRICHSEN. *Muenchen. med. Wehnschr.*, 1922, lxxvii, 1423.

Intestinal occlusion due to Meckel's diverticulum. F. DELANNOY. *Arch. franco-belges de chir.*, 1922, xiv, 120.

A case of intestinal obstruction due to a persistent Meckel's diverticulum. N. F. SINCLAIR. *Med. Press*, 1922, B. S. cxvii, 210.

Isocytocolic invagination; intestinal resection, recovery. G. BECHERLE. *Polichin*, Rome, 1922, xvii, sez. chir. 120. [18]

Isocytocolic invagination in the roentgenogram. A. CZEPA. *Wien. klin. Wehnschr.*, 1922, xxxv, 30.

Stricture of the ileum attributed to tuberculosis in an infant. E. TERREIN and G. LARDENNOIS. *Bull. et mém. Soc. de chir. de Par.*, 1922, lxxvii, 177.

Chronic colitis. C. B. LEVINBLUM. *J. Iowa State M. Soc.*, 1922, vii, 96.

The infected colon as related to the toxic psychoses. J. W. DRAPER. *Boston M. & S. J.*, 1922, clxxxvi, 304.

Diverticulitis of the colon. R. FRIEDMANN. *Arch. f. klin. Chir.*, 1922, cxvii, 564.

Cancer of the large intestine. G. A. HENDON. *Kentucky M. J.*, 1922, xx, 304.

Some appendiceal vagaries. O. F. BLOCH. *Internat. J. Surg.*, 1922, xxxv, 82. [18]

Diverticulum of the appendix. F. SKUBISZEWSKI. *Gaz. lek.*, 1922, lvi, 170.

Intussusception of the appendix: with a report of a case. P. M. SPURNEY and D. M. NYQUIST. *Ohio State M. J.*, 1922, xviii, 181.

Invagination of the appendix. A. SZENES. *Arch. f. klin. Chir.*, 1922, cxix, 88.

The deceptive types of appendicitis. C. JULLIARD. *Rev. méd. de la Suisse Rom.*, 1922, xlii, 120.

Acute appendicitis. C. D. HOY. *Ohio State M. J.*, 1922, xviii, 122.

Foreign bodies in the gastro-intestinal tract in acute appendicitis. W. C. ALLARDICE. *Brit. M. J.*, 1922, i, 473.

The operative indications in acute appendicitis. G. LECLEERC. *Arch. franco-belges de chir.*, 1922, xiv, 344.

A critical study of chronic appendicitis. F. LAROCHE, P. BRODET, and G. ROUXEAUX. *Presse méd.*, Par., 1922, xxx, 497.

The question of appendicitis; also a contribution to the significance of vermicular pains in surgery, gynecology, and internal medicine. RHEINDORF. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxiv, 463.

An unusual accident during appendectomy. F. J. W. PORTER. *Lancet*, 1922, ccii, 371.

The treatment of the appendix stump. J. F. BALDWIN. *Cincinnati J. M.*, 1922, iii, 28.

Concerning the burial of the appendix stump. JALAGIER. *Bull. et mém. Soc. de chir. de Par.*, 1922, lxxvii, 183.

The treatment of volvulus of the sigmoid flexure. V. GUSSEW. *Zentralbl. f. Chir.*, 1922, xlix, 78.

Cyst of the rectum. P. LOCKHART-MUMFERY. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Proct., 33.

Inflammatory strictures of the rectum. H. HARTMANN. *Lancet*, 1922, ccii, 307. [18]

Rectal stricture and rectal cancer treated with carbon dioxide snow (preliminary report). E. J. CLEMENS. *Med. Rec.*, 1922, ci, 364.

The diagnosis, prognosis, and treatment of carcinoma of the rectum. PENNINGTON. *Am. J. Clin. Med.*, 1922, xvii, 174.

Cancer of the rectum: etiological observations, symptomatology, and treatment based on the material of the

Hochneegg clinic. F. MANDEL. *Wien. klin. Wehnschr.*, 1922, xxxv, 31.

The modern treatment of cancer of the rectum. V. SCHMIDEN and A. W. FISCHER. *Therap. d. Gegenw.*, 1922, lxvii, 8.

Should coccygeal perineal amputation be abandoned in the treatment of rectal cancer? DESMARIST. *Arch. franco-belges de chir.*, 1922, xiv, 203.

The classification and treatment of hemorrhoids. M. C. PRITTE. *J. Med. Ass. Georgia*, 1922, xi, 88.

The treatment of hemorrhoids. H. B. STONE. *Virginia M. Month.*, 1922, xlviii, 680.

The treatment of hemorrhoids. R. M. HARBIN. *J. Med. Ass. Georgia*, 1922, xi, 91.

Abscesses about the anus and rectum. C. J. DRUECK. *Chicago M. Rec.*, 1922, xlv, 93.

Liver, Gall-Bladder, Pancreas, and Spleen

An unusual case of rupture of the liver. H. MEADE. *Lancet*, 1922, ccii, 582.

Multiple echinococci of the liver. K. WOHLGEMUTH. *Med. Klin.*, 1922, xviii, 40.

The etiology and pathology of amebic liver abscess. L. ROGERS. *Lancet*, 1922, ccii, 463.

Amebic liver abscess: its pathology, prevention, and cure. II. The varieties and treatment of amebic liver abscess. L. ROGERS. *Lancet*, 1922, ccii, 560.

The treatment of ascites in cirrhosis of the liver; two cases operated on according to Ruotte's method. N. F. MIRELL. *Nowy Chir. Arch.*, 1922, i, 153.

A study of a nodular lesion of the liver. J. LLAMBIAS. *Rev. Asoc. méd. argent.*, 1922, xxxiv, 247.

The phylogenesis of the gall-bladder. I. BROMAN. *Upsala Laekaref. Foerh.*, 1922, xxvi, 7.

Studies of the function of the gall-bladder. W. B. HARER, E. H. HARGIS, and V. C. VAN METER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 307. [19]

A contribution to the study of biliary lithiasis. C. B. SOLER. *Arch. españ. de enferm. d. apar. digest.*, 1922, v, 147.

Roentgenological examination of the behavior of the stomach during an attack of cholelithiasis. H. SMIDT. *Arch. f. klin. Chir.*, 1922, cxvii, 425.

Calculus cholecystitis. L. MADEIRA, V. CASTRO, and P. MOURA. *Bol. Soc. med. e cirug. S. Paulo*, 1922, iv, 28, 117.

A case of acute inflammation of the gall-bladder in which gall-stones were found fractured. F. J. W. PORTER. *Indian M. Gaz.*, 1922, lxxvii, 90.

The importance of mechanical influences in the causation of stasis of the gall-bladder and in the formation of calculi. C. ROHDE. *Klin.-therap. Wehnschr.*, 1922, xxix, 15.

The diet in biliary lithiasis. R. LUIS y YAGIL. *Arch. españ. de enferm. d. apar. digest.*, 1922, iv, 700.

A case of traumatic rupture of the common bile duct. H. RUDBERG. *Muenchen. med. Wehnschr.*, 1922, lxxviii, 1650.

Cystic dilatation of the common bile duct. K. YAMANOUCHI. *Ztschr. f. Jap. chir. Gesellsch.*, 1922, xxiii, No. 6.

Recent developments in the treatment of diseases of the biliary tract. F. A. BREWSTER. *Nebraska State M. J.*, 1922, vii, 83.

Non-surgical drainage of the gall-bladder. T. C. GIBSON. *Northwest Med.*, 1922, xxi, 70. [20]

A reply to certain antagonistic criticism of non-surgical biliary tract drainage. B. B. V. LYON. *N. York M. J.*, 1922, cxv, 260.

- The relative value of operations on the gall bladder. W. A. BRYAN. *South M. J.*, 1922, **XXV**, 209.
- The surgery of the bile passages: functional, bacteriological, and resultant diagnosis, operative physiology, anatomical and radio-physiological operative precautions. K. HENNINGSEN. *Schwed. med. Wehnschr.*, 1922, **II**, 1112.
- Cross-section's part in the development of the surgery of the bile ducts. E. VAILLON. *Schwed. med. Wehnschr.*, 1922, **II**, 1140.
- Hepaticoduodenostomy for injury of the bile ducts during cholecystenterostomy. J. D. McCLACHERN. *Ann. Surg.*, 1922, **LXXV**, 344. [20]
- Reconstruction of the common bile duct. J. DOUGLAS. *Ann. Surg.*, 1922, **LXXV**, 379.
- Reconstruction of the common bile duct. F. S. MATTHEWS. *Ann. Surg.*, 1922, **LXXV**, 378.
- Cholecystectomy for acute calculous cholecystitis. P. PETERIUS. *Bull. et méém. Soc. de chir. de Par.*, 1922, **XLVIII**, 213.
- Closure of the abdomen without drainage after cholecystectomy and choledochotomy. H. M. RICHTER. *Surg., Gynec. & Obst.*, 1922, **XXIV**, 182. [21]
- Accessory pancreas with ulcer of the pylorus. H. COXES. *Surg., Gynec. & Obst.*, 1922, **XXIV**, 384.
- Radiation-xy stimulation of the pancreas in experimental pancreatic deficiency. W. F. PETERSON and C. C. SARTORIUS. *Am. J. M. Sc.*, 1922, **CLXIII**, 321.
- Acute pancreatitis. D. F. JONES. *Boston M. & S. J.*, 1922, **CXXXV**, 337. [21]
- Carcinoma of the pancreas. J. B. DEEVER. *Med. Rec.*, 1922, **CL**, 492.
- Acute haemorrhagic pancreatitis. I. ALLENDE. *Semana méd.*, 1922, **XXIX**, 109.
- The mechanism of rupture of the spleen. W. NOWICKI. *Polskie czasopismo lek.*, 1922, **I**, 139.

- The relation of the pleonic syndromes to the pathology of the blood. W. J. MAYO. *Illinois M. J.*, 1922, **XXI**, 175. [21]
- The diagnosis and treatment of morbus Banti. B. AIBERT. *Chirurg. Wch.*, 1922, **IV**, 184.
- Surgical splenectomy. G. FERRERA. *Polichin. Rome*, 1922, **XXX**, no. 344, 146.
- Primary sarcoma of the spleen. H. GOLDSTEIN. *Am. J. Surg.*, 1922, **XXV**, 47.

Miscellaneous

- The important abdominal lymphatic currents. P. DIEBOLDS and D. TURNESCH. *Arch. franco-belges de chir.*, 1922, **XXV**, 298.
- Fundamentals of the ptosis question. R. C. COFFIN. *J. Lancet*, 1922, **n. s.** **CLII**, 131.
- Medical treatment of visceroptosis. R. A. PARKER. *Med. J. Australia*, 1922, **I**, 237.
- The acute abdomen. E. F. BEER. *J. Iowa State M. Soc.*, 1922, **XL**, 89.
- Acute conditions in the abdomen. W. W. GRANT. *J. Am. M. Ass.*, 1922, **LXXVIII**, 882.
- The diagnosis of abdominal conditions in childhood. H. F. HELMHOLTZ. *Chicago M. Rev.*, 1922, **CLV**, 87.
- Death following pneumoperitoneum. G. GAERTNER. *Berl. klin. Wehnschr.*, 1922, **LVIII**, 1367.
- The intraperitoneal pressure. E. MELCHIOR and P. MELCHIOR. *Arch. f. klin. Chir.*, 1922, **CLIX**, 148.
- The clinical aspects of abdominal tuberculosis. J. MORLEY. *Brit. M. J.*, 1922, **I**, 383.
- Chylous cysts of the mesentery; a casuistic contribution. A. CANDRA. *Zentralbl. f. Chir.*, 1922, **XLIX**, 37.
- Torsion of an appendix epiploica simulating acute appendicitis. J. N. J. HARTLEY. *Edinburgh M. J.*, 1922, **n. s.** **XXVIII**, 111.

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Rickets: a theory of the metabolic disturbances and of its association with tetany. D. N. PATON. *Brit. M. J.*, 1922, **I**, 179.
- Studies on experimental rickets. X. Rickets and ricket-like disease produced in rats by deficient diets. P. G. SHERRIN, E. A. PARK, E. V. MCCOLLUM, and N. SHIMMURA. *Dental Cosmos*, 1922, **LXIV**, 263.
- Rickets in India. H. S. HURCHISON and S. J. MURPHY. *Glasgow M. J.*, 1922, **n. s.** **XXV**, 145.
- The surgical treatment of the chronic deformities of rickets. R. C. GILSON. *J. Nat. M. Ass.*, 1922, **XIV**, 9.
- Paralysis due to gunshot wounds. O. STRACKER. *Deutsche Ztschr. f. Chir.*, 1922, **CLXXII**, 357.
- Unusual shadow formations at the lower end of the femur and at the heads of the femur and humerus; a contribution to the healing processes of fractures. W. MUELLER. *Arch. f. orthop. u. Unfall-Chir.*, 1922, **XX**, 97.
- The after-results of twenty-one cases of thecolotomy performed for tuberculous bones and joint diseases. H. DRUMMOND. *Brit. M. J.*, 1922, **I**, 343.
- Research upon the development of the joints. G. FALASCON. *Chir. d. organi di movimento*, 1922, **V**, 509. [23]
- The changes in contractured and ankylosed joints. G. MARCHI. *Arch. f. orthop. u. Unfall-Chir.*, 1922, **XX**, 97.
- The bone deformities of football players. F. MANDL and J. PALANOVAY. *Deutsche Ztschr. f. Chir.*, 1922, **CLXXII**, 376. [24]

- The functional results of the tendon operation in irreparable paralysis of the radial nerve. PETERIUS. *Klin. Wehnschr.*, 1922, **I**, 177.
- Regeneration in osseous panaris. H. BECK. *Arch. f. klin. Chir.*, 1922, **CLXXII**, 748. [24]
- Cystic fibrous osteitis and essential bone cysts. A. MOUCHET and P. LE GAC. *Arch. franco-belges de chir.*, 1922, **XXV**, 337.
- The diagnosis and treatment of osteomyelitis. A. C. STOKES. *Med. Herald*, 1922, **XL**, 90.
- Acute staphylococcal osteomyelitis and its vascular treatment. R. GREGOIRE. *Med. Press*, 1922, **n. s.** **CLVII**, 177.
- Septic gangrenous osteomyelitis due to bacillus coli. F. SATTA. *Chir. d. organi di movimento*, 1922, **VI**, 103. [24]
- Necrotic osteomyelitis in gunshot wounds. O. UFFREDOZZI and G. M. FASIANI. *Arch. ital. di chir.*, 1922, **V**, 34.
- A case of traumatic myositis ossificans. S. L. BHADIA. *Indian M. Gaz.*, 1922, **LXXIV**, 96.
- The nature of the disease picture of Albers-Schoenberg marble bones. P. SCHULZ. *Arch. f. klin. Chir.*, 1922, **CLXXII**, 411. [25]
- Sarcoma of the long bones. A. P. C. ASHURST. *Surg., Gynec. & Obst.*, 1922, **CCXIV**, 333.
- Sarcoma of the long bones; a study of microscopically proved cases. H. W. MEYERDING. *Surg., Gynec. & Obst.*, 1922, **CCXIV**, 321. [25]
- The registry of cases of bone sarcoma. E. A. CHIDMAN. *Surg., Gynec. & Obst.*, 1922, **CCXIV**, 335.

Orthopedic aspects of rheumatoid arthritis. A. H. TOOD. *Lancet*, 1922, CCB, 515.

Articular myxoma. G. BOLOGNESI. *Chir. d. organi di movimento*, 1922, vi, 17.

The causes of congenital torticollis. A. SCHUBERT. *Deutsche Ztschr. f. Chir.*, 1921, cxvii, 32.

The stiff and lame shoulder. J. A. BROOKS. *Hahneman. Month.*, 1922, lvi, 106.

Late hereditary syphilitic osteoarthropathy of the shoulder. G. MININAC and E. CADENAT. *Rev. d'orthop.*, 1922, xxix, 125. [26]

On the function of the latissimus dorsi muscle and a sign of functional dissociation in simulated and functional paralysis of the arm. C. H. MONRAD-KROHN. *Acta med. Scand.*, 1922, lvi, 9.

Symmetrical gangrene of the extremities. I. MALAGUETA. *Arch. brasil. de med.*, 1921, vi, 939.

Radioulnar bursitis, epicondylitis, epicondylalgia (tennis elbow): a personal experience. R. B. OSGOOD. *Arch. Surg.*, 1922, iv, 430.

Two interesting cases of ectrosyndactyly. S. E. YAP and E. V. PINEIRA. *Philippine J. Sc.*, 1922, xx, 1.

Traumatic destruction of the first phalanx of the thumb: screwing of the phalangette into the metacarpal. LÉCLERC. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlvii, 168.

Slipping rib. R. DAVIES-COLLEY. *Brit. M. J.*, 1922, i, 432.

Diseases of the costal cartilages following relapsing fever. S. P. SELKIN. *Verhandl. d. aerztl. Ges. Saarotoff*, 1921. [27]

Early hip joint disease in childhood. J. T. RUGH. *N. York M. J.*, 1922, cxv, 256.

A case of juvenile deforming arthritis of the hip. YVERNAULT. *Rev. d'orthop.*, 1922, xxix, 139. [27]

Pseudo-coxalgia: a clinical and radiographic study. H. PLATT. *Brit. J. Surg.*, 1922, ix, 366. [27]

Derangements of the semilunar cartilages of the knee joint. A. MYERS. *Internat. J. Surg.*, 1922, xxxv, 69.

Two unusual cases of injury to the tibial tubercle. J. W. SEVER. *Boston M. & S. J.*, 1922, cxxxvi, 311. [28]

Anterior painful apophysitis of the tibia. P. FEUTELAIS. *Presse méd. Par.*, 1922, xxx, 279. [28]

Isolated disease of the scaphoid bone of the foot. A. S. RISSET. *J. Am. M. Ass.*, 1922, lxxviii, 647.

The etiology of congenital club foot. F. HAHN. *Ztschr. f. orthop. Chir.*, 1921, xlii, 151.

The work of Deutschlaender concerning a peculiar disease of the metatarsus. E. JACOBSEN. *Zentralbl. f. Chir.*, 1922, xlix, 116.

The treatment of the contracted flatfoot during sleep. H. VON SALIS. *Zentralbl. f. Chir.*, 1922, xlix, 46.

Fractures and Dislocations

Fractures of tearing efforts. C. GHILLINI. *Chir. d. movimento*, 1922, vi, 32. [28]

Operative treatment of fractures. J. R. GARNER. *Internat. J. Surg.*, 1922, xxxv, 77.

The treatment of simple fractures. W. A. LANE. *Am. J. Surg.*, 1922, xxxvi, 53.

Complicated fractures. W. S. NASH. *Internat. J. Surg.*, 1922, xxxv, 119.

The efficient treatment of compound fractures. C. A. McWILLIAMS. *Med. Rec.*, 1922, ci, 333. [29]

The circling of bones with metallic strips. A. LAMBOTTE. *Arch. franco-belges de chir.*, xxv, 363.

The treatment of bone fistule and bone cavities following gunshot fractures. BLICHER. *Arch. f. klin. Chir.*, 1921, cxviii, 439. [29]

Non-union of fractures. H. J. WARING and E. T. C. MILEGAN. *Brit. J. Surg.*, 1922, ix, 428. [29]

Dislocations and fracture-dislocation occurring at the acromio-clavicular articulation. R. W. McNALLY. *Illinois M. J.*, 1922, xli, 292.

The erect dislocation of the humerus, with notes of a case. J. H. PRINGLE. *Glasgow M. J.*, 1911, vi, 139.

An apparatus for the treatment of fractures of the humerus. H. PASCHOLD. *Schweiz. med. Wchnschr.*, 1921, li, 1265.

The picture of paralysis of the thumb muscles in drummers; loss of function of the extensor pollicis longus from a typical fracture of the radius. W. LEVY. *Zentralbl. f. Chir.*, 1922, xlix, 15. [30]

The treatment of typical fractures of the radius from 1907-1921. F. BANGE. *Arch. f. klin. Chir.*, 1921, cxviii, 578. [30]

The mechanics and treatment of fractures of the forearm. P. B. MAGNUSON. *J. Am. M. Ass.*, 1922, lxxviii, 789. [30]

Congenital dislocation of the hip. H. B. THOMAS. *J. Am. M. Ass.*, 1922, lxxviii, 323. [31]

Femoro-acetabular bone graft in irreducible luxation of the hip. D. MARAGLIANO. *Chir. d. organi di movimento*, 1922, vi, 92.

Fracture of the head of the femur. F. SATTI. *Chir. d. organi di movimento*, 1922, vi, 97.

A case of severe fracture of the femur due to a bull's horn. H. A. LEDIARD. *Lancet*, 1922, ccii, 530.

Implantation of dead bone in pseudarthroses and fractures of the neck of the femur. C. GIRODE. *Rev. de chir., Par.*, 1922, xli, 60. [31]

Two cases of inferior epiphyseal detachment of the tibia associated with fracture of the fibula. R. TILLIER. *Rev. d'orthop.*, 1922, xxix, 119. [31]

Eversion fractures of the ankle joint. J. W. GIBBON. *Virginia M. Month.*, 1922, xlviii, 712.

A case of astragalo-scaphoid luxation. G. BONANI. *Chir. d. organi di movimento*, 1922, vi, 71.

Fractures of the astragalus. VAN DER ELST. *Arch. franco-belges de chir.*, 1922, xxv, 383.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

The surgical treatment of tuberculosis. E. LEXER. *Deutsche med. Wchnschr.*, 1921, xxix, 821.

The care and equipment of amputated cases in the marine. K. NIENY. *Jena: Gustav Fischer*, 1921.

Plastic surgery of the stump in children. C. DEUTSCHLAENDER. *Arch. f. klin. Chir.*, 1921, cxviii, 253.

Amputations at the shoulder and at the hip. H. LITTLEWOOD. *Brit. M. J.*, 1922, i, 381. [32]

Partial amputations of the foot, especially that of Chopart. GERNEZ and others. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 215.

Bone grafts. H. R. G. POATE. *Med. J. Australia*, 1922, i, 209.

Arthroplasty of the elbow joint: a point of view. H. C. BEAN. *Boston M. & S. J.*, 1922, cxxxvi, 313.

A new immobilization splint for injuries of the extensor tendon of the finger. H. A. STAUB. *Muenchen med. Wchnschr.*, 1922, lix, 119.

Operative procedures for reconstruction of the thumb. G. MOUTIER. *J. de chir.*, 1922, xix, 225. [33]

Tendon substitution to restore the function of the extensor muscles of the fingers and thumb. W. J. MERRILL. *J. Am. M. Ass.*, 1922, lxxviii, 425. [33]

Mobilization in the surgery of the extremities. A. BUM. *Med. Klin.*, 1921, xvii, 1571.

Experiences and results following open mobilization of ankylosed weight-bearing joints. H. HUBERBAUM. *Arch. f. klin. Chir.*, 1922, CCXII, 647.

The treatment of injuries of the knee joint. ZABRANSKY. *Russkolye v. chir. a gynaek.*, 1922, I, 34, 72.

The technique of arthrodesis of the knee joint. W. M. KORTKEJ. *Jubileinyi Sborn. J. J. Gorkow*, 1922, II, 108.

The operative treatment of gunshot wounds of the knee. A. N. KRYOLOFF. *Kubanski Nautschno-Med. Wostok*, 1922, I, 94.

Veslker's plastic of the tibia in rachitis and pseudarthroses. ROTHEN. *Zentralbl. f. Chir.*, 1922, XLVII, 1863.

A case of osteosynthesis of the astragalus. A. LAMBOTTE. *Arch. francó-belges de chir.*, 1922, XXV, 169.

The surgical treatment of stubborn pes equinus of the stump of the foot. A. KORTLEBORN. *Arch. f. klin. Chir.*, 1922, CCXII, 748.

The surgical and mechanical treatment of talipes due to anterior poliomyelitis: usual types of cases and results as shown by moving pictures. C. C. CHATTERJEE. *J. Lancet*, 1922, II, 1310, 131.

The operative treatment of pes equus. I. SCALONE. *Chir. d. organi di movimento*, 1922, VI, 81.

Orthopedics in General

The prophylactic and corrective value of footgear. A. H. HAYES. *Med. Rev.*, 1922, VI, 416.

Placing a child walking on its hands in the upright position. J. KOPPE. *Orysal beil.*, 1922, LV, 449.

Leveling (balancing) the pelvis in cases of inequality of the length of the legs, with a description of a pathognomonic sign. P. LEWIS. *J. Am. M. Ass.*, 1922, LXV, 804.

Experimental elongation of the limbs. O. SIZZI. *Chir. d. organi di movimento*, 1922, VI, 31.

SURGERY OF THE SPINAL COLUMN AND CORD

Cervical ribs—with special reference to the surgical treatment. A. S. TAYLOR. *N. York State J. M.*, 1922, XXII, 97.

Fracture of the atlas and axis vertebrae. E. W. C. BEARFIELD. *Indian M. Gaz.*, 1922, LVII, 39.

Fractures of the transverse process. NIEDLICH. *Beitr. z. klin. Chir.*, 1922, CCXII, 683.

Scoliosis. A. O'REILLY. *J. Missouri State M. Ass.*, 1922, VII, 74.

Reflex scoliosis due to a mobile kidney. L. GIROLAMO. *Riforma med.*, 1922, XXXVIII, 199.

Remarks on lumbar scoliosis. E. F. CYRIAX. *Internat. J. Surg.*, 1922, XXV, 84.

The treatment of scoliosis by plaster jackets. J. HANAUER. *Rev. d'orthop.*, 1922, XXIX, 127.

A particular disease of the vertebral column simulating Pott's disease. J. CAVALI and M. GALLAND. *J. de radiol. et d'électrol.*, 1922, VI, 31.

Hysterical pseudo-Pott's disease; remarks on the diagnosis of Pott's disease. P. FEUTALAIS. *Rev. d'orthop.*, 1922, XXIX, 37.

Sacralization of the fifth lumbar vertebra. L. TORRES. *Bol. Soc. med. e chir. S. Paulo*, 1922, IV, 231, 235.

The fifth lumbar vertebra and its variations. A. LÉRY. *Presse méd. Par.*, 1922, XXX, 138.

Infectious arthritis of the spine. S. EPSTEIN. *Am. J. M. Sc.*, 1922, CLXIII, 401.

The treatment of tuberculous spondylitis. H. DEBRUNNER. *Fortschr. d. Med.*, 1922, XL, 85.

Tumor of the sacro-coccygeal region. LEROUX and BORRIS. *Rev. franc. de gynéc. et d'obst.*, 1922, XXII, 103.

Experiences with tumors of the spinal cord. W. J. MIXTER. *Boston M. & S. J.*, 1922, CLXXVI, 276.

Multiple diverse tumors affecting the spinal cord. P. WORK. *Colorado Med.*, 1922, XIX, 30.

The diagnosis of tumors of the cauda equina, conus, and epiconus medullaris: a report of nine cases. H. I. PARKER. *Am. J. M. Sc.*, 1922, CLXIII, 343.

Recurrent spinal cord tumor. ELSBERG. *Ann. Surg.*, 1922, LXXV, 377.

Spinal symptoms completely relieved by laminectomy. ELSBERG. *Ann. Surg.*, 1922, LXXV, 377.

SURGERY OF THE NERVOUS SYSTEM

The gross pathology of brachial plexus injuries. A. W. ANSON. *Surg., Gynec. & Obst.*, 1922, XXXII, 331.

The treatment of brachial plexus injuries. A. ANSON. *Northwest Med.*, 1922, XXI, 35.

Bone changes in neurofibromatosis. E. STAHNKE. *Deutsche Ztschr. f. chir.*, 1922, CLXXII, 6.

A case of plexiform neuroma. P. TURNER. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Clin. Sect., 15.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

The treatment of tuberculous glands. G. G. TURNER. *Med. Press*, 1922, N. S. CXIII, 194.

A study of the relation of the adrenal glands to experimentally produced hypotension (shock), with a note on the protective effect of preliminary ataxothoma. A. R. RICH. *Bull. Johns Hopkins Hosp.*, 1922, XXXII, 79.

The treatment of spontaneous gangrene. B. W. PENN. *Norw. Chir. Arch.*, 1922, I, 108.

The physiologic-chemical basis of normal saline injections in view of the newer investigations on wound shock. E. WIDMARK. *Svenska Läkartidningen*, 1922, XLIII, 573.

Shock occurring in cases of gunshot wounds of the abdomen. O. KLEINSCHMIDT. *Arch. f. klin. Chir.*, 1922, CCVII, 569.

Hemostatic shock in cases of ascites and pleurisy due to the injection of the effusion. M. ROCH and P. GAUTIER. *Presse méd. Par.*, 1922, XXX, 109.

A rational treatment of surgical shock based on proven physiological data. A. R. MUNDIE. *Canadian M. Ass. J.*, 1922, XI, 136.

Facts and figures about cancer. U. G. DAILEY. *J. Nat. M. Ass.*, 1922, XIV, 7.

Cancer is a blood disease and should be treated as such. R. BELL. *Med. Rev.*, 1922, VI, 423.

The possible relation of secretin to cancer. E. C. PRENTISS. *South. M. J.*, 1922, XV, 181.

The blood cholesterol—its importance and the value of its determination in cancer research. G. LUDEN. *Canadian M. Ass. J.*, 1922, xii, 147.

The cancer problem in the southern states. F. L. HOFFMAN. *J. South Carolina M. Ass.*, 1922, xviii, 51.

The lymphatics in cancer. J. L. CAMPBELL. *J. Med. Ass. Georgia*, 1922, xi, 85.

Is cancer mortality increasing? W. M. STRONG. *J. Cancer Research*, 1921, vi, 751.

A case of general vascular carcinoma. J. B. HUNTER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Obst. & Gynec., 22.

Malignant granuloma. M. MATTHIES. *Muenchen. med. Wehnschr.*, 1921, lxxviii, 1526. [38]

The relation of aleukemic leukemia, so-called pseudo-leukemia, and malignant granuloma. H. FOX and D. L. FARLEY. *Am. J. M. Sc.*, 1922, clxiii, 313.

Sarcoma following injury: report of a case. L. R. MARKLEY. *Am. J. Surg.*, 1922, xxxvi, 70.

The treatment of malignant tumors. F. SAUERBRUCH and M. LEBSCHER. *Deutsche med. Wehnschr.*, 1922, xlviii, 53, 122. [38]

Blood

On blood grouping and its clinical applications: with a simple method of group determination. S. C. DYKE. *Lancet*, 1922, cclii, 379.

Recent facts concerning blood transfusion. R. LEWISOHN. *Am. J. Surg.*, 1922, xxxvi, 83.

Indications for retransfusion of blood which has escaped into the abdominal cavity. R. ZIMMERMANN. *Ztschr. f. Geburtsh. u. Gynaek.*, 1921, lxxxiv, 335.

Agglutinins in human blood. E. W. JOHANNSEN. *Hosp. Tid.*, 1921, xxix, 449.

The results of a new method for determining the fibrin percentage in blood and plasma. H. C. GRAM. *Acta med. Scand.*, 1922, lvi, 107.

A case of mesenteric thrombosis. J. G. HENRY. *Boston M. & S. J.*, 1922, clxxvi, 390.

A discussion on postoperative embolism and thrombosis. J. P. LOCKHART-MUMERY and others. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Surg., 23.

Pernicious anemia and septic anemia. W. HUNTER. *Brit. M. J.*, 1922, i, 421.

Types of severe anemia. A. STENGEL. *Wisconsin M. J.*, 1922, xx, 497.

Surgery of the blood. T. SINCLAIR. *Brit. M. J.*, 1922, i, 375. [39]

Blood and Lymph Vessels

The technique of intravenous syringe injections. P. RAVAUT. *Presse méd., Par.*, 1922, xxx, 547. [40]

High blood pressure. KING. *J. Am. Inst. Homoeop.*, 1922, xix, 841.

The treatment of high blood pressure. H. O. MOSENTHAL. *Med. Clin. N. Am.*, 1922, v, 1139.

Embolectomy in the treatment of embolic disturbances in the extremities. E. KEY. *Acta chirurg. Scand.*, 1922, liv, 339.

Ligation of the veins in cases of so-called spontaneous gangrene. W. A. OPPEL. *Verhandl. d. russ. chir. Pirogoff-Ges.*, Petrograd, 1921. [40]

Racemose arterial angioma. A. BERTOCCHI. *Arch. ital. di chir.*, 1922, v, 65.

The rôle of the capillaries in circulatory disorders. E. P. BOAS. *Med. Clin. N. Am.*, 1922, v, 1007.

Traumatic arteriovenous aneurism. G. G. FARQUHAR. *Brit. M. J.*, 1922, i, 472.

Arteriomy. T. GLUCK. *Muenchen. med. Wehnschr.*, 1922, lxi, 53. [41]

The anomalous right subclavian artery and its possible clinical significance. A. A. GOLDBLOOM. *Surg., Gynec. & Obst.*, 1922, xxxiv, 378.

Ruptured aneurism of the tongue. F. C. SABIN. *J. Am. M. Ass.*, 1922, lxxviii, 805.

First determination of aortic aneurism in the living subject by a military surgeon. A. N. TASKER. *Mil. Surgeon*, 1922, i, 338.

A hitherto undescribed tumor of the base of the aorta. G. R. HERRMANN and M. T. BURROWS. *Arch. Int. Med.*, 1922, xxix, 339.

A case of dissecting aneurism of the aorta. H. DAVY and M. GATES. *Brit. M. J.*, 1922, i, 471.

Palliative mediastinotomy in aneurism of the arch of the aorta. GULEKE. *Zentralbl. f. Chir.*, 1921, xlviii, 1877. [41]

Aneurism of the descending arch of the aorta. W. C. PUMPELLY. *J. Med. Ass. Georgia*, 1922, xi, 94.

Ligation of the innominate artery for innominate aneurism. O. BALLANCE. *Brit. J. Surg.*, 1922, ix, 438. [41]

A case of suture of the common carotid for late hemorrhage following a hand-grenade injury of the vascular wall. G. BECHERLE. *Policlin., Rome*, 1922, xxix, sez. chir., 81. [41]

Obstruction of the superior vena cava by primary carcinoma of the lung: pathological report. H. W. DANA and R. MCINTOSH. *Am. J. M. Sc.*, 1922, clxiii, 411.

Diffuse aneurism of the femoral artery due to an osteogenic exostosis of the inferior extremity of the femur. R. MONOD. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 202.

The surgical treatment of elephantiasis cruris by the Kondoleon method. A. PIGNATTI. *Chir. d. organi di movimento*, 1922, vi, 49.

Surgical Diagnosis, Pathology, and Therapeutics

Group diagnosis. H. E. SMITH. *N. York M. J.*, 1922, cxv, 263.

Aches and pains of internal disease. O. V. HUFFMAN. *Med. Rec.*, 1922, ci, 414.

The place of the modern medical laboratory in the diagnosis of disease. L. ACHARD. *Med. Rec.*, 1922, ci, 418.

A method for the insertion of a fractional gastric tube. J. J. HERTZ. *J. Am. M. Ass.*, 1922, lxxviii, 651.

The acute abdomen: diagnosis and differential diagnosis. W. Z. JACKSON. *Kentucky M. J.*, 1922, xx, 206.

The clinical significance of abdominal pain in children. J. BRENNEMAN. *Surg., Gynec. & Obst.*, 1922, xxxiv, 344. [41]

A plea for routine examination upon the operating table under anesthesia as a preliminary to abdominal operations. J. W. KEEFE. *Boston M. & S. J.*, 1922, clxxxvi, 307.

Observations on the value of lumbar puncture. H. MACCORDICK. *Canadian M. Ass. J.*, 1922, xii, 108.

Conditions preceding mucocutaneous epithelial cancer; precancerous lesions; general etiology of each localization. C. STAJANO. *Semana méd.*, 1922, xxix, 124.

Injuries from strong electric currents. H. JAEGER. *Schweiz. med. Wehnschr.*, 1921, li, 1250.

Burns and their treatment: an experimental, anatomopathologic, and clinical study. A. KOTZAREFF. *Rev. de chir., Par.*, 1922, xli, 5. [42]

The newer methods in the treatment of burns: with report of cases. G. R. MICKLETHWAITE. *Ohio State M. J.*, 1922, xviii, 198.

Experimental Surgery and Surgical Anatomy

Some recent advances in chemistry as aids to the clinician. H. C. BRADLEY. *Westminster M. J.*, 1922, ix, 312.

Contribution to the study of the anatomy of the inguinoabdominal region. K. STINCKER. *Rev. de med. y ciruj. de la Habana*, 1922, xxxv, 268.

The influence of epididymectomy on the prostate (experimental research). H. WATTHARD. *Ztschr. f. urol. Chir.*, 1921, viii, 87. [43]

Blind-end circular suture of the intestine, closed ends abraded, and the double diaphragm punctured with a knife introduced per rectum. W. S. HALSTED. *Ann. Surg.*, 1922, lxxv, 350. [43]

Studies in experimental traumatic shock, the critical level in a falling blood pressure. W. B. CANNON and M. CASTELL. *Arch. Surg.*, 1922, iv, 300. [44]

Roentgenology and Radium Therapy

Radiotherapeutic treatment of prostatic hypertrophy. P. CUPPENBER. *Med. Ibera*, 1922, xvi, 273.

Effect of ray therapy on the spleen and liver. F. PARTSCH. *Muenchen. med. Wchschr.*, 1921, lxxviii, 1613.

Some points in the physics and technique of roentgen-ray work. A. L. GRAY. *South. M. J.*, 1922, xv, 185.

X-ray spectra produced under various experimental conditions. W. DEANE. *J. Radiol.*, 1922, iii, 50.

A spectrometer contrived for the purposes of practical radiology. A. MARCB, K. STRAUSS, and O. FRITZ. *Arch. Radiol. & Electrotherapy*, 1922, xxxvii, 251.

An assemblage of apparatus for the purpose of exciting a new model Coolidge tube in oil at 200,000 volts. F. HERNANDEZ-JOHNSON. *Arch. Radiol. & Electrotherapy*, 1922, xxxvii, 273.

The regulation of the vacuum of modern therapeutic X-ray tubes. C. ANDREWS. *Arch. Radiol. & Electrotherapy*, 1922, xxxvii, 293.

The auto-electronic discharge and its application to the construction of a new form of X-ray tube. J. E. LILIENTHAL. *Am. J. Roentgenol.*, 1922, n. s. ix, 172.

The protection of roentgenotherapy chambers against X-rays. FERROUD and REGAUD. *Bull. Acad. de med., Par.*, 1922, lxxxvii, 282.

A new protective material against the X-rays. BECLÈRE and others. *Bull. Acad. de med., Par.*, 1922, lxxxvii, 215.

Stereofluoroscopy. J. D. MORGAN. *Am. J. Roentgenol.*, 1922, n. s. ix, 165. [46]

A new technique for the vertical examination of the sphenoids and ethmoids, with demonstration of a special sphenoid film holder. G. E. PRAHLER. *Am. J. Roentgenol.*, 1922, n. s. ix, 185. [46]

Dental roentgenography in the light of clinical and pathologic findings. A. S. WOLFE. *Am. J. Roentgenol.*, 1922, n. s. ix, 190.

Roentgenological findings in two cases of metastatic carcinoma of the vertebral column with a clinically and roentgenologically unknown primary focus. T. SCHOLL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxxviii, 227.

X-ray study of the lumbosacral spine. A. O'NEILLY. *South. M. J.*, 1922, xv, 217.

Polygraphy—its field and its limitations. J. G. VAN ZWALUWENBERG. *J. Radiol.*, 1922, iii, 74. [46]

Vells in the right hypochondrium and their differentiation from other organic lesions and spasm. L. G. COLE. *Am. J. Roentgenol.*, 1922, n. s. ix, 137.

Radiological diagnosis of tumors of the left hypochondrium. L. MAYER and R. COETZ. *J. de radiol. et d'electrol.*, 1922, vi, 22. [47]

The roentgenological diagnosis of gallstones. H. RIESER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxxviii, 219.

The roentgenography of gallstones. Z. MICHALSKI. *Polskie czasopismo lek.*, 1921, i, 141.

The new X-ray therapy. C. GOORMANN. *Chirurgia J. M.*, 1922, ix, 32.

Additional roentgenotherapy experiences. F. STARK. *Strahlentherapie*, 1921, iii, 202.

The stimulating effect of the roentgen rays; biological results from experiments on plants. L. HALBERG. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxxviii, 299.

The stimulating effect of small doses of roentgen rays on the cell functions. S. NORDENSTORF. *Ugeskr. f. Læger*, 1921, lxxxiii, 1553.

The value of interstitial radiation. D. QUICK. *Am. J. Roentgenol.*, 1922, n. s. ix, 101.

The biological dosage of X-ray. F. C. WOOD. *Med. Rec.*, 1922, cl, 329.

Minimum erythema dose with diagnostic voltages. A. W. ERSKINE. *Am. J. Roentgenol.*, 1922, n. s. ix, 148.

The relation of temperature changes to roentgen-ray skin reactions. C. L. MARTIN and G. T. CALDWELL. *Am. J. Roentgenol.*, 1922, n. s. ix, 152.

The ultraviolet ray in the treatment of roentgen-ray telangiectasis. H. A. HAZEN. *Am. J. Roentgenol.*, 1922, n. s. ix, 101. [47]

Roentgen rays of short wave lengths and their measurement. W. DUANE. *Am. J. Roentgenol.*, 1922, n. s. ix, 197.

Studies on X-ray effects: the action of serum from X-rayed animals on lymphoid cells in vitro. J. B. MURPHY, J. H. LEE, and E. STURM. *J. Exper. M.*, 1922, xxiv, 373. [47]

A critique of deep dosimetry. LEHMANN. *Muenchen. med. Wchschr.*, 1922, lxxv, 127.

A filter for deep roentgenotherapy. BAUMISTER. *Muenchen. med. Wchschr.*, 1922, lxxv, 405.

The importance of the use of stimulating roentgen rays in medicine, with particular reference to their effect on the endocrine system and their influence on carcinoma. M. FRAENKEL. *Strahlentherapie*, 1921, iii, 603.

The treatment of glandular metastases of carcinoma. R. H. BOGGS. *Am. J. Roentgenol.*, 1922, n. s. ix, 117. [48]

Oxygen insufflation of articulations to be radiographed. KAHN. *J. de radiol. et d'electrol.*, 1922, vi, 34.

The radiological findings in diseases of the bones. R. KIENBOECK. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxxviii, 538.

The X-ray in tuberculosis. R. W. MORSE. *J. Lancet*, 1922, n. s. xlii, 110.

Injury of the larynx from roentgenization. H. MACHILE. *Monatsschr. f. Ohrenh.*, 1921, lv, 1441.

Hyperthyroidism, basal metabolism, and radiography. H. W. VAN ALLEN. *J. Radiol.*, 1922, iii, 81. [49]

The control of X-ray therapy in hyperthyroidism by the basal metabolism test. H. M. JONES. *J. Radiol.*, 1922, iii, 85. [49]

Perforation of the oesophagus and roentgenography. H. BERGER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxxviii, 133.

X-ray studies of mediastinal shadows with special reference to dermoid cysts. M. KAHN. *J. Radiol.*, 1922, iii, 93. [49]

The possibilities of roentgen-ray treatment in cancer of the puerperas. G. E. RICHARDS. *Am. J. Roentgenol.*, 1922, n. s. ix, 192. [49]

Pericervical tumor, X-ray diagnosis: benefit from X-ray and radium therapy for postoperative recurrence. S. TOUREY. *Med. Rec.*, 1922, ci, 310.

Necrosis of a fibroma previously treated by X-rays. ROUSSET and BONNARD. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 196.

Deep X-ray treatment of cancer: a personal impression of the Erlangen Frauenklinik. H. L. WARD. *Lancet*, 1922, ci, 196.

Radiotherapy in carcinoma of the breast. G. E. PRAHLER. *Boston M. & S. J.*, 1922, cxxxvi, 318.

X-ray treatment of carcinoma of the breast. A. W. FROELICH. *Illinois M. J.*, 1922, xli, 209.

Radium applicator forceps. C. P. G. WAKELEY. *Arch. Radiat. & Electrotherapy*, 1922, xxvi, 314.

The action of radium and the X-rays on the blood and blood-forming organs. I. LEVIN. *Am. J. Roentgenol.*, 1922, n. s. ix, 112. [50]

Problems of clinical interest to the surgeon and radium therapist relating to cancer. C. E. FIELD and R. WADHAMS. *Canadian M. Ass. J.*, 1922, xli, 153.

Industrial Surgery

The work of the local surgeon. S. LEIGH. *Internat. J. Surg.*, 1922, xxxv, 66.

Hospitals; Medical Education and History

Our hospitals and their standardization. J. E. PERRY. *J. Nat. M. Ass.*, 1922, xiv, 50.

Some surgical experiences before the development of the hospital. T. M. McINTOSH. *Med. Rec.*, 1922, ci, 487.

Standardization: has it brought greater efficiency? What are its effects on surgery in smaller hospitals? KENNE. *J. Am. Inst. Homoeop.*, 1922, xix, 825.

Modern commentaries on Galen. J. WRIGHT. *N. York M. J.*, 1922, cxv, 241.

Medical progress, including the teaching of medicine. H. S. PRITCHETT. *Canadian Pract.*, 1922, xlvii, 80.

Group medicine from the standpoint of the surgeon. H. M. HEPPERLEN. *Nebraska State M. J.*, 1922, vii, 89.

Legal Medicine

The physician as a witness. C. W. BURR. *Nebraska State M. J.*, 1922, vii, 95.

Report on medical legislation in Idaho. E. E. LAUBACH. *Northwest Med.*, 1922, xxi, 83.

Medicolegal application of human blood grouping; second communication. R. OTTENBERG. *J. Am. M. Ass.*, 1922, lxxxviii, 873.

Not liable for using roentgen-ray static machine. *Street vs. Hodgson (Md.)*, 115 Atl. R., p. 27.

GYNECOLOGY

Uterus

The ball treatment of prolapse. S. SAMSON. *Muenchen. med. Wochenschr.*, 1922, lxxix, 88.

The results of the interposition operation for procidentia and prolapse of the uterus. H. N. SHAW. *Surg., Gynec. & Obst.*, 1922, xxxiv, 394. [51]

Uterine fibroma and necrosis. P. BÉGOUTIN. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 108.

The treatment of fibromata by massage and gymnastics. F. WETTERWALD. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 93.

Ablation of uterine fibromata without adnexitis. J. FOLLIS. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 180.

The change of tonus of the uterine muscle in the course of a laparotomy in three cases of uterine myoma. O. BRUTNER. *Gynéc. et obst.*, 1922, v, 191.

Roentgen therapy of myoma and the hemorrhagic metropathies. C. A. CASTANO. *Semana méd.*, 1922, xxix, 77.

Notes on the clinical value of radium in the management of uterine hemorrhage, some end-results. J. O. POLAK. *Med. Rec.*, 1922, ci, 303.

Severe uterine hemorrhage after vaginal operations. J. PHILLIPS. *Lancet*, 1922, ciii, 530. [51]

Anteplastic amputation of the cervix uteri. H. HARTMANN. *Gynéc. et obst.*, 1922, v, 142.

Points of interest in the lower uterine segment and cervix. G. R. OSBORN. *J. Oklahoma State M. Ass.*, 1922, xv, 31.

Dilatation of the uterine cervix. C. LANZA. *Semana méd.*, 1922, xxix, 320.

The treatment of the lacerated and infected cervix of the uterus. A. V. PERRY. *California State J. M.*, 1922, xx, 77.

A case of retained sponge simulating carcinoma of the cervix uteri. F. C. SMITH. *Med. Press*, 1922, n. s. cxiii, 240.

The treatment of advanced carcinoma of the cervix of the uterus by radium. A. BURROWS. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 97.

Carcinoma uteri. C. L. BONIFIELD. *Am. J. Obst. & Gynec.*, 1922, iii, 250.

Cancer of the uterus; classification and scale of invasion. B. DE BENGEO. *Rev. med. d. Uruguay*, 1922, xiv, 116.

The effect of the sexual function on the origin of cancer in the uterus and the breast. P. W. L. PENNIS. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxv, 2095.

Radium in the treatment of uterine cancer. C. O. DONALDSON and G. E. KNAPPENBERGER. *South. M. J.*, 1922, xv, 224.

Valuable methods used to extend operability in advanced cancer of the cervix. G. V. BROWN. *Am. J. Obst. & Gynec.*, 1922, iii, 263. [51]

Should radium therapy of the cancerous uterus precede or follow operation? E. OPPERT. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 118.

The control of the mortality of abdominal operations for cancer. G. W. CRILE. *Am. J. Obst. & Gynec.*, 1922, iii, 272.

The problem of elevating the vaginal portion of the cervix by the prolapse operation. H. SAENGER. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1922, lvi, 270.

The action of emetine hydrochloride upon the uterus. P. MARTIN. *Am. J. Obst. & Gynec.*, 1922, iii, 241.

Adnexal and Peri-Uterine Conditions

Abdominal gestation. G. V. JAMES. *Madras M. J.*, 1922, v, 16.

A case of alodolimal pregnancy. W. G. NASH. *Lancet*, 1922, cvii, 429.

An unusual case of ectopic pregnancy. M. ROSENBERG. *J. Am. M. Ass.*, 1922, lxxviii, 719. [52]

Infected extra-uterine pregnancy rupturing into the bladder after thirteen years, with discharge of fetal bones through the urethra. M. KAHN. *J. Am. M. Ass.*, 1922, lxxviii, 889. [52]

Rupture of extra-uterine pregnancy with symptoms of intestinal infection. A. PAQUET. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 109.

The reinfusion of blood in twenty-four cases of ruptured extra-uterine pregnancy. B. TOPPLER. *Deutsche med. Wochenschr.*, 1922, xlviii, 92.

Tubal lithoparion. B. WHITTHOUSE. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Obst. & Gynec., 17.

Blood discoloration of the umbilicus as a diagnostic sign of extra-uterine pregnancy. H. HELLENDALL. *Zentralbl. f. Gynaek.*, 1922, xlv, 147.

A new symptom of extra-uterine pregnancy. H. HELLENDALL. *Zentralbl. f. Gynaek.*, 1922, xlv, 899.

Salpingostomy versus salpingotomy in the treatment of tubal gestation. B. WHITTHOUSE. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Obst. & Gynec., 17.

Hæmatic cyst of the right ovary. VAN CAUWENBERGHE. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 114.

The influence of gestation on ovarian cysts. L. CANTALAMISSA CARBONI. *Preflin*, Rome, 1922, xvii, sez. prel., 412. [52]

Malignant ovarian cyst with splenic, peritoneal, and pleural metastases. A. A. LENDON. *Med. J. Australia*, 1922, i, 324.

A contribution to the histogenesis of ovarian tumors. S. H. GUEST. *Am. J. Obst. & Gynec.*, 1922, iii, 131. [53]

A rare case of a dermoid cyst with ball formations. S. FILATOWA. *Shorn. rabot po akush. i ginek.*, 1921, i, 98. [53]

A case of carcinoma of the ovary. L. AUBERT. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 81.

Operative treatment of chronic purulent disease of the adnexa. K. SKROBANSKI. *Shorn. rabot po akush. i ginek.*, 1921, i, 44. [53]

External Genitalia

Neurodermatitis and carcinoma of the clitoris in a young girl. H. MILLER. *Dermat. Ztschr.*, 1921, xxxv, 70.

The pathologic-anatomical changes in elephantiasis vulvæ. A. ROSENOWSKI. *Shorn. rabot po akush. i ginek.*, 1921, i, 38.

Chronic sclerosed ulcer of the vulva. L. RISTIC. *Lipec vjesnik*, 1921, xliii, 222. [54]

The hypertrophic-ulcerative form of chronic vulvitis (elephantiasis vulvæ, syphiloma). I. J. TAUBER. *Am. J. Obst. & Gynec.*, 1922, iii, 281.

Vulvosagittis. A. K. PAINE. *Med. Press*, 1922, n. 3, ciii, 196.

A case of vulvar thrombus. VOGON and RHESTER. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 112.

Atresia and stricture of the vagina. J. E. KISS. *Am. J. Obst. & Gynec.*, 1922, iii, 290.

Vaginoplasty. O. STEEDING. *Zentralbl. f. Gynaek.*, 1922, xlv, 61.

Miscellaneous

A better gynecology and a better obstetrics. W. L. CROSTWHAITE. *Texas State J. M.*, 1922, xvii, 310.

The differential diagnosis of female pelvic disorders. F. C. ANTONI. *J. Nat. M. Ass.*, 1922, xiv, 13.

A clinical demonstration on some pelvic conditions. T. HOLMES. *Practitioner*, 1922, cviii, 213.

Pelvic inflammation of the female, with special reference to the peritoneum. E. DUNLAP. *Texas State J. M.*, 1922, xvii, 335.

The relation of the corpus luteum to menstruation and to pregnancy. W. R. MACKENZIE. *Brit. M. J.*, 1922, i, 343.

The postoperative anovarian syndrome and its treatment. A. MARIE and M. FOURCADE. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 117.

Hyperthyroidism in functional menorrhagia. A. W. BOCKE. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Obst. & Gynec., 24.

Normal menopause. W. L. MOSBY. *Kentucky M. J.*, 1922, xx, 157.

Abnormal menopause. H. A. GILLIAM. *Kentucky M. J.*, 1922, xx, 159.

Obesity in the female. A. LECLERCQ. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 115.

Subperitoneal intra-vesico-uterine fibroma. J. DELMAS. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 115.

Gonorrhea in women. W. J. WILLIS. *J. Missouri State M. Ass.*, 1922, xix, 102.

Electrotherapy in gynecology. A. ZIMMER. *Arch. Radiol. & Electrotherapy*, 1922, xxvi, 301.

Radium therapy drainage of the small pelvis. F. DAELS. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 113.

The imperative structures utilized in support of the pelvic diaphragm. G. B. THANTON. *Texas State J. M.*, 1922, xvii, 341.

OBSTETRICS

Pregnancy and Its Complications

Internal secretion between mother and fetus. A. TANNER. *Acta med. Scand.*, 1922, lvi, 33.

Uterine pregnancy. E. NOVAK. *J. Am. M. Ass.*, 1922, lxxviii, 913.

Prognosis of the pregnant woman. A. G. H. ANDERSON. *Pacific Coast J. Hematol.*, 1922, xviii, 71.

The hysterical nature of so-called pernicious vomiting of pregnancy. A. J. HURST. *Lancet*, 1922, ccii, 528.

Some observations on the investigation of the toxemias of pregnancy. A. L. McILROY. *Brit. M. J.*, 1922, i, 535.

Gravidic nephritis in the course of a toxic pregnancy. MARC-RIVIÈRE. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 108.

Tuberculosis of the larynx and pregnancy. COUVELAIRE and POWILEWICZ. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 105.

Rheumatismal spondylitis and pregnancy. COMMANDEUR. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 110.

Pregnancy and tumor growth. I. KROES. *J. Cancer Research*, 1922, vi, 343.

Carcinoma of the breast occurring during pregnancy and lactation. G. WOLFF. *Arch. f. klin. Chir.*, 1921, xlvii, 305.

A case of conservative surgery of a gravid uterus complicated by fibroma. L. DARTIGUES. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 116.

A case of pregnancy after myomectomy. GOULLIQUET. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 111.

A case of post-eclamptic delirium. RHENTER. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 112.

Variocities and pregnancy. A. STUEBEL. *Med. Klin.*, 1922, xvii, 1323.

Hysteropexy and gestation, preventive operation four months before term. A. ROSNER. *Gynéc. et obst.*, 1922, v, 185.

Two cases of placenta prævia. J. L. T. IRRISTER. *Med. Press*, 1922, n. s. cxiii, 192.

Premature separation of the normally inserted placenta. R. B. MURSON. *Rev. argent. de obst. y ginec.*, 1921, v, 360.

Utero-placental apoplexy and vicious insertion of the placenta. H. PAUCOT. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 109.

The treatment of placenta prævia by abdominal hysterotomy. BROCHA. *Gynéc. et obst.*, 1922, v, 198.

Cæsarean operation for central placenta prævia. R. SCHUCKAERT. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 114.

Rupture of a cesarean scar at the end of pregnancy. VORON and BOUGET. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 110.

Septic abortion. O. A. CANNON. *Canadian M. Ass. J.*, 1922, xii, 103.

Labor and Its Complications

A review of 2,000 consecutive confinements. F. SCHAUFELBERGER. *Nebraska State M. J.*, 1922, vii, 77.

Twilight sleep: notes on seventy-five cases. H. M. GELSON. *Lancet*, 1922, ccii, 428.

How long should the test for labor be permitted to last in a vicious pelvis? M. RIVIÈRE and R. BOUESIER. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 107.

Dystocia due to fibroma; cesarean operation with a living child. AUTÉFAGE. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 109.

Dystocia due to ovarian tumors. F. J. SOUBA. *Minnesota Med.*, 1922, v, 176.

Brief discussion of two cases of uterine rupture. T. A. CHAMBERLAIN. *Semana méd.*, 1922, xxix, 420.

The use of forceps in obstetrics. A. H. BILL. *Ohio State M. J.*, 1922, xviii, 195.

Bags versus expectancy in dry labor. F. A. DORMAN. *N. York State M. J.*, 1922, xxii, 113.

Bags and version. R. P. KELLY. *Virginia M. Month.*, 1922, xlviii, 691.

Further observation upon the use of bags and version at term. M. P. RUCKER. *Virginia M. Month.*, 1922, xlviii, 682.

Version by external manœuvres. E. LÉVY-SOLAL. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 106.

A study of the pelvic floor during the second stage of labor and the application thereto of the Waldstein transverse episiotomy. G. FITZ-PATRICK. *J. Am. Inst. Homœop.*, 1922, xiv, 830.

Sudden death in the course of labor. PLAUCHEU and GAUCHÉRAND. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 111.

Abdominal delivery: a reasonable procedure. W. CANTRELL. *Texas State J. M.*, 1922, xvii, 538.

Cæsarean section. R. H. MORRISON. *Med. J. Australia*, 1922, i, 220.

Cæsarean section. H. C. LLOYD. *Med. J. Australia*, 1922, i, 231.

Cæsarean section, indications and contra-indications. J. K. QUEBLEY. *N. York State J. M.*, 1922, xxi, 198.

Various methods of performing cesarean section with indications and contra-indications. L. C. REDMON. *Kentucky M. J.*, 1922, xx, 187.

A clinical and anatomical study of fifty-one cases of repeated cesarean section, with especial reference to the healing of the cicatrix and to the occurrence of rupture through it. T. O. GAMBLE. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 93.

Puerperium and Its Complications

Intestinal occlusion in the puerperium. COMMANDEUR and EPARVIER. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 111.

The prophylaxis of puerperal eclampsia. M. OXILIA. *Semana méd.*, 1922, xxix, 469.

A case of postpartum eclampsia cured by Edebohl's renal decapsulation. E. FEY. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1922, lvi, 256.

Puerperal enterococcus infection. GONNET and BUJADOUX. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 112.

A case of puerperal septicæmia; recovery. J. H. ROBINSON. *Lancet*, 1922, ccii, 371.

Two cases of puerperal streptococci septicæmia treated by anti-streptococcus serum. R. DUFONT. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 116.

The Manchester school: Charles White (1738-1813) and the arrest of puerperal fever. J. G. ADAMI. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 1.

The treatment of puerperal infection. F. J. MCCANN. *Med. Press*, 1922, n. s. cxiii, 214, 236.

The treatment of puerperal fever. A. DOEDERLEIN. *Deutsche med. Wchschr.*, 1922, xlviii, 22.

Acute puerperal inversion, with the report of a case. J. P. COHEN. *Boston M. & S. J.*, 1922, clxxvi, 352.

New-Born

A review of the literature of hæmorrhagic diseases of the new-born. D. WALTHALL. *J. Missouri State M. Ass.*, 1922, xix, 100.

Resuscitation of a pulseless new-born child by intracardial injections of adrenalin. N. A. DACHAREY. *Semana méd.*, 1922, xxix, 135.

A case of iniencephaly without spina bifida. G. L. STRACHAN. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 87.

Miscellaneous

Midwifery and medical legislation. C. W. GARRISON. *South. M. J.*, 1922, xv, 194.

A plea for the standardization of obstetrical procedures in open hospitals. J. WEISS. *Med. Rec.*, 1922, ci, 365.

The practical value of the motion picture in the teaching of obstetrics. G. H. BANDY. *J. Nat. M. Ass.*, 1922, xiv, 21.

Superstitions in obstetrics. S. B. BLAKELY. *N. York State J. M.*, 1922, xxii, 117.

Apprehension for the rural mother of the future. C. E. DURHAM. *Texas State J. M.*, 1922, xvii, 525.

Antisepsis in obstetrics. G. B. BYRD. *Virginia M. Month.*, 1922, xlviii, 685.

Cæsarean section in the Falkland Islands. F. G. W. DEANE. *Lancet*, 1922, ccii, 430.

Are we giving our parturient women a square deal? F. T. VAN EMAN. *J. Missouri State M. Ass.*, 1922, xix, 97.

Sterility with reference to the state. R. A. GIBBONS. *Brit. M. J.*, 1922, i, 427.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

Cases of sudden death with atrophy of the adrenal medulla. R. ZIMMERMAN. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1922, 224.

Gangrene due to adrenal arteritis. W. A. OPPEL. *Verhandl. d. russ. chir. Pirogoff-Ges.*, Petrograd, 1922. [55]

Malignant disease of the adrenals, with report of a case. H. G. FULLER. *J. Urol.*, 1922, 98, 77. [55]

Basic questions in the surgery of the adrenals. H. PETERS. *Klin. Wchnsch.*, 1922, I, 161.

A case with single kidney. V. E. ANAYA. *Rev. med. d. Uruguay*, 1922, 339, 161.

The kidney capsule in poisoning due to bichloride of mercury. F. RUDAWAN. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, 3039, 374.

Original investigation and comparative value of indigo carmine as a functional kidney test. C. M. HARTSTER. *Ohio State M. J.*, 1922, xviii, 200.

The threshold of the kidney. W. L. BROWN. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Sect. Therap. and Pharm., 1.

Methods of diagnosis in surgical diseases of the kidney accompanied by pyuria. L. W. BREYERMAN and M. McKELAR. *Cincinnati J. M.*, 1922, III, 8.

Conduct to follow in cases of renal polyuria. G. SIGURET. *Brussels med.*, 1922, III, 357.

Clinical course and therapeutic management of chronic nephrosis. A. A. ERSTEIN. *Med. Clin. N. Am.*, 1922, v, 1207.

Primary inflammations of the pelvis of the kidney. STARKOV. *Russkiiy v. chir. a. gynaek.*, 1921, I, 10.

A grave case of pyelonephritis. A. DE MORAIS. *Rev. de gynec. e Obst.*, 1922, 891, 37.

Nephritis. L. L. BEWELL. *J. Nat. M. Ass.*, 1922, xiv, 24.

The pathogenesis of Bright's disease. U. PARODI. *Riforma med.*, 1922, xxxvii, 195.

Chronic diffuse nephritis in childhood: report of a case with a review of the literature. C. H. GORDON. *Am. J. Dis. Child.*, 1922, cxi, 183.

Bright's disease, determination of the extent and nature of the renal lesion. T. AMOS. *California State M. J.*, 1922, xx, 26.

The management of chronic nephritis. W. B. BLANTON. *Virginia M. Month.*, 1922, xlviii, 203.

The conservative treatment of nephritis. D. A. BETHA. *J. Nat. M. Ass.*, 1922, 319, 26.

Renal tuberculosis—nephrectomy. P. P. FAJARDO. *Boi. Assoc. med. de Puerto Rico*, 1922, xvi, 1.

Non-tuberculous infections of the kidney. N. MOORE. *J. Missouri State M. Ass.*, 1922, xix, 104.

Gonococcal infections of the kidney. R. R. SIMMONS. *J. Urol.*, 1922, vii, 113. [56]

Tumors of renal cysts. E. BAUMANN. *Munchen. med. Wchnsch.*, 1922, lxx, 87.

Bilateral polycystic kidney. S. ROLANDO. *J. d'uroi. med. et chir.*, 1922, xlii, 81.

Tuberculous pseudo-cystic kidney. REYNARD. *J. d'uroi. med. et chir.*, 1922, xlii, 107.

Intermittent hydronephrosis with gastro-enterologic symptoms. A. MUGLIASSAN. *Ann. Surg.*, 1922, lxxv, 318.

Renal tumor with obscure symptoms. A. COMELLI. *Arch. ital. di chir.*, 1922, v, 17.

Borderline cases of calculus disease of the kidney. R. A. HOOK. *Virginia M. Month.*, 1922, xlviii, 205.

Structure of the ureter as an explanation of some obscure abdominal conditions. T. M. GREEN. *Surg., Gynec. & Obst.*, 1922, xxiv, 383. [57]

The influence of ureteral stricture on other lesions of the urinary tract. G. L. HENNER. *Cincinnati J. M.*, 1922, III, 15.

Bladder, Urethra, and Penis

Practical cystoscopy and urethroscopy. E. L. PERRINS. *J. Lancet*, 1922, 9, 311, 118.

A case of congenital ectopic bladder operated on by the technique of Maklak. O. NEMMANN. *Ztschr. f. Urol.*, 1922, xv, 474.

The potential malignancy in ectrophy of the bladder. A. J. SCHULTZ. *Ann. Surg.*, 1922, lxxv, 363.

Retroversion of the bladder treated by vesicoabdominotomy. J. A. C. MACQUEEN. *Lancet*, 1922, cxi, 531.

Notes on the psychic influence on bladder disturbances in women. R. E. WILKES. *J. Missouri State M. Ass.*, 1922, xix, 111.

The etiology of hernia of the bladder. L. F. WATSON. *Am. J. Surg.*, 1922, xxvi, 35.

Cystitis—its diagnosis. H. T. LOW. *Colorado Med.*, 1922, xix, 50.

Acute perforating simple ulcer of the bladder. G. JEAN. *J. d'uroi. med. et chir.*, 1922, xlii, 123.

A case of vesical bilharziasis. I. S. COVINA. *Arch. de med., chirug. y especial.*, 1922, vii, 15.

Cystocele. C. C. CAIN. *Texas State J. M.*, 1922, xvii, 540.

Median bar at the vesical orifice. W. M. SPITZER. *Colorado Med.*, 1922, xix, 11.

The treatment of tumors of the bladder in the modern clinic. E. JOSEPH. *Wratschebnoje Obosrenije*, 1922, I, 141.

The disappearance of tumors of the bladder after their incomplete destruction by high-frequency currents. J. MARTIN. *J. d'uroi. med. et chir.*, 1922, xlii, 90.

The extended radical operation for cancer of the bladder and its anatomical basis. W. LATZKO. *Ztschr. f. urol. Chir.*, 1922, viii, 135. [57]

The technique of the treatment of carcinoma of the bladder and prostate by a combination of surgery, electrocoagulation, radium implantation, and the roentgen ray. B. A. THOMAS and G. E. PFALLER. *Arch. Surg.*, 1922, lv, 431. [58]

Parietal ligature of the bladder. F. NASSETGI. *Arch. ital. di chir.*, 1922, v, 41.

The results of operative treatment of the bladder. R. DEMEL. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1921, xxxiii, 713.

Urethral stone in urethral empyema. M. KILKA. *Casop. lek. Cesk.*, 1922, lx, 226.

Chronic infections of the male urethra and its adnexa. H. E. PAUL. *J. Urol.*, 1922, vii, 173. [59]

Plastic induration of the penis and methods for its surgical treatment. SINTAI. *Arch. f. klin. Chir.*, 1921, cxvii, 643.

An operation for the cure of incontinence associated with epispadias. H. H. YOUNG. *J. Urol.*, 1922, vi, 1. [59]

Phimosis treated by a circular invaginated suture. DARTHOUS and ROUSAVROT. *J. d'uroi. med. et chir.*, 1922, xlii, 95.

Genital Organs

The operation for varicocele. F. FRANK. *Zentralbl. f. Chir.*, 1922, xlix, 45.

Commentaries on a case of pseudo-hermaphroditism. C. C. DA COSTA. *Rev. de gynéc. et d'obst.*, 1922, xvi, 44.

A survey of the treatment of acute gonorrhea in the male. A. R. FRAZER. *J. Urol.*, 1922, vii, 87. [60]

The treatment of gonorrhea in the male. C. B. PRITCHETT. *Virginia M. Month.*, 1922, xlviii, 205.

Prostatic hypertrophy. D. A. SINCLAIR. *Med. Times*, 1922, i, 83.

The treatment of hypertrophy of the prostate. M. POISSON. *Klin. therap. Wechschr.*, 1921, xxviii, 311.

The treatment of malignant disease of the prostate and bladder. J. T. GERSHOFY. *J. Urol.*, 1922, vii, 33. [60]

Operability of the senile prostate, a reminder to the general practitioner. W. B. DAKIN. *California State J. M.*, 1922, xx, 83.

The technique of the late two-stage prostatectomy. A. WANDER. *Zentralbl. f. Chir.*, 1922, xlix, 194.

Should the rejuvenation following prostatectomy be considered as a "Steinach effect"? V. BLUM. *Wien. klin. Wechschr.*, 1922, xxv, 2.

Binominal massage in seminal vesiculitis. R. L. REYNOLDS. *J. Am. M. Ass.*, 1922, lxxviii, 651.

The radical cure of tuberculosis of the seminal tract: I. A brief survey of the literature. H. H. YOUNG. *Arch. Surg.*, 1922, lv, 334. [61]

Calcification of the seminal vesicles. H. L. KRETSCHMER. *J. Urol.*, 1922, vii, 67. [62]

The undescended testicle. M. E. STOUT. *South M. J.*, 1922, xv, 213.

Sarcoma of an undescended (abdominal) testicle. G. H. LUDGSON. *Brit. M. J.*, 1922, i, 475.

An exceptionally large free body in a hydrocoele of the testis; the question of the possibilities of its origin. E. GLASS. *Zentralbl. f. Chir.*, 1922, xlix, 18.

Transplantation of the testicles. ESCHERICH. *Zentralbl. f. Chir.*, 1921, xlviii, 1851. [62]

The old and new results of vasectomy on the testicle and prostate. E. WEHNER. *Zschr. f. urol. Chir.*, 1921, vii, 113.

The operative treatment and pathology of acute epididymitis. J. H. CUNNINGHAM and W. H. COOK. *J. Urol.*, 1922, vii, 130. [63]

Miscellaneous

The application of the methods of correlation to the study of the urine. C. P. WHITE. *Lancet*, 1922, ccl, 369.

Regarding the etiology of orthostatic albuminuria. W. RIEBER and S. L. RIEBER. *J. Am. M. Ass.*, 1922, lxxviii, 644.

Urinary lithiasis in children. G. J. THOMAS and C. O. TANNER. *Minnesota Med.*, 1922, v, 147.

The external use of diathermy in cases of impacted urinary calculi. R. L. DOORMASHKIN. *Med. Rec.*, 1922, cl, 371.

Diathermy in genito-urinary practice. K. M. WALKER. *Practitioner*, 1922, cviii, 192.

Concerning uraemia. C. BARTLETT. *Hahneman. Month.*, 1922, lvii, 80.

Suction drainage, with presentation of an apparatus. M. F. CAMPBELL. *J. Urol.*, 1922, vii, 153. [63]

SURGERY OF THE EYE AND EAR

Eye

Brain tumor. E. E. MCKEOWN. *Am. J. Ophth.*, 1922, v, 225.

Apparent pituitary tumor with restoration of vision. W. A. CASSIDY and S. R. GIFFORD. *Am. J. Ophth.*, 1922, v, 206.

Ocular movements (collective review). C. BERENS, JR. *Ophth. Lit.*, 1922, xviii, 61.

The conjunctiva (collective review). W. ZENTMAYER. *Ophth. Lit.*, 1922, xviii, 123.

A growth on the conjunctiva in an infant. P. G. DOYNE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 17.

Keratitis at the limbus. R. VON DER HEYDT. *Am. J. Ophth.*, 1922, v, 228.

Epithelioma of the conjunctiva. C. J. LOPEZ, A. P. CHAVARRIA, and V. RIBON. *Semana méd.*, 1922, xxix, 133.

Cysts and cystic tumors of the caruncle: report of a case of sebaceous cyst of the caruncle. J. GREEN, JR. *South. M. J.*, 1922, xv, 254.

A new bactericidal agent for use in the conjunctival sac. H. S. GRADLE. *Illinois M. J.*, 1922, xli, 193.

Extirpation of the lacrimal sac. R. E. WRIGHT. *Indian M. Gaz.*, 1922, livii, 52. [64]

Development of the lacrimal canal in normal and abnormal conditions. G. O. RING. *Am. J. Ophth.*, 1922, v, 211.

Congenital stenosis of the nasolacrimal duct. J. B. McMEYER. *Am. J. Ophth.*, 1922, v, 226.

Monocular exophthalmos. B. M. HOWLEY. *J. Med. Soc. N. Jersey*, 1922, xix, 77.

General methods of diagnosis. E. JACKSON. *Ophth. Lit.*, 1922, xviii, 1.

The importance of ophthalmoscopic examination in children. J. P. COSTELLO. *J. Missouri State M. Ass.*, 1922, xix, 118.

The ocular manifestations of multiple sclerosis. W. A. HOLMES. *Arch. Ophth.*, 1922, li, 114.

Some eye disturbances due to pelvic reflexes. E. F. GOUGH. *Texas State J. M.*, 1922, xvii, 543.

A chart for testing the vision of children and adults. G. A. SULZER. *Am. J. Ophth.*, 1922, v, 208.

Color vision. P. G. DOYNE. *Med. Press*, 1922, n.s. cxiii, 230.

Progressive loss of vision; negative findings. W. F. MATSON. *Am. J. Ophth.*, 1922, v, 222.

Disturbances of vision occurring after the loss of blood. A. TERNON. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 118.

One advantage of single vision. E. J. BROWN. *Am. J. Ophth.*, 1922, v, 208.

Anomalies of refraction and accommodation. T. B. SCHNEIDEMAN. *Ophth. Lit.*, 1922, xviii, 34.

Headache from the standpoint of ophthalmology and oto-laryngology. G. H. MUNDT. *Illinois M. J.*, 1922, xli, 183.

Eye injuries. F. C. PETERS. *Hahneman. Month.*, 1922, lvii, 168.

Some remarks concerning compensation for ocular injuries. F. ALLPORT. *Med. Rec.*, 1922, cl, 346.

Industrial trauma in relation to the development of ocular tuberculosis, syphilis, and neoplasm. H. BARKAN. *Arch. Ophth.*, 1922, li, 103.

- Gunshot wound of the left eye and lower lid; operation for the formation of a new lower lid. M. W. B. O'RYER. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 14.*
- Injury from bird shot. E. C. ELLETT. *Am. J. Ophth., 1922, v, 227.*
- Perforating wounds of the eyeball. E. S. CONNELL. *J. Missouri State M. Ass., 1922, xix, 117.*
- Penetrating injury from a piece of steel; shrinking eyeball. F. L. BRICK and G. L. STRADER. *Am. J. Ophth., 1922, v, 221.*
- An intra-ocular foreign body. E. A. WEISSER. *Am. J. Ophth., 1922, v, 221.*
- The extraction of non-magnetic foreign bodies from the anterior chamber of the eye. W. F. O'REILLY. *Boston M. & S. J., 1922, cxxxvi, 418.* [64]
- An operating hand lamp for ophthalmic work. A. M. RAMSAY. *Arch. Ophth., 1922, li, 132.*
- Double congenital ptosis; Moutais' operation on the right eye. R. A. GREEVES. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 16.*
- The use of living sutures in the treatment of ptosis. W. W. WEISSE. *Arch. Ophth., 1922, li, 99.*
- Traumatic ophthalmoplegia. F. THIEREN. *Presse méd., Par., 1922, xix, 267.*
- Transplantation of the entire vertical recti for abducens palsy. R. O'CONNOR. *Am. J. Ophth., 1922, v, 210.*
- Some remarks on the nature and treatment of strabismus. DELOCE. *Brit. J. Ophth., 1922, vi, 104.*
- Herpes zoster ophthalmicus with ophthalmoplegia totalis. H. H. TEUBER. *Am. J. Ophth., 1922, v, 227.*
- The non-surgical treatment of malignant epibulbar neoplasms. E. B. HECKEL. *Arch. Ophth., 1922, li, 141.*
- Epibulbar sarcoma with penetration of the globe. H. NEAME. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 21.*
- Melanotic sarcoma of the eye. W. E. SCHENCK and C. GOOSMANN. *Cincinnati J. M., 1922, lii, 26.*
- Enucleation in infants. E. B. HECKEL. *Am. J. Ophth., 1922, v, 227.*
- Enucleation of the eye and implantation of a glass sphere in Tenon's capsule. H. WOOD. *Am. J. Ophth., 1922, v, 223.*
- Glass ball implanted in Tenon's capsule. E. C. ELLETT. *Am. J. Ophth., 1922, v, 228.*
- Orbital tumor. E. B. HECKEL. *Am. J. Ophth., 1922, v, 226.*
- Chondroma at the orbital margin. W. C. BANE and W. M. BANE. *Am. J. Ophth., 1922, v, 219.*
- Recurring myosarcoma of the orbit. J. H. BUCKLEY. *Am. J. Ophth., 1922, v, 207.*
- Ocular pemphigus. W. C. BANE and W. M. BANE. *Am. J. Ophth., 1922, v, 221.*
- Melanosarcoma of the cornea. G. A. HINNEB. *Cincinnati J. M., 1922, lii, 25.*
- A case of filamentary keratitis. R. L. REA. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 17.*
- A case of sclerosing keratitis of the right eye. R. L. REA. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 14.*
- Central scotoma in anterior uveitis. J. G. CLEGG. *Brit. J. Ophth., 1922, vi, 115.*
- A case of cysts of the iris. R. R. CRUISE. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 13.*
- Bulging of filtration blebs following iridectomy. H. C. LEECH. *Am. J. Ophth., 1922, v, 224.*
- The influence of the endocrine system on intra-ocular tension. J. LURE. *Jb. Endocrinology, 1922, vi, 213.*
- Glaucoma. F. R. SPENCER and C. L. LARUE. *Am. J. Ophth., 1922, v, 222.*
- Iridectomy for glaucoma. E. C. ELLETT. *Am. J. Ophth., 1922, v, 228.*
- Experience gained from 140 trephine operations for glaucoma. M. L. HEPBURN. *Brit. J. Ophth., 1922, vi, 97.* [64]
- The etiology of primary cataract. H. KIRKPATRICK. *Brit. M. J., 1922, i, 487.* [65]
- "Invaginating" capsular cataract. E. STIEREN. *Am. J. Ophth., 1922, v, 225.*
- Zonular cataract. E. C. ELLETT. *Am. J. Ophth., 1922, v, 228.*
- Congenital anterior capsular cataract. L. D. BROWN. *Am. J. Ophth., 1922, v, 202.* [65]
- A method of preventing loss of vitreous. F. FRISCH. *Am. J. Ophth., 1922, v, 81.* [65]
- Vitreous hemorrhage at menstruation. W. C. MEANOR. *Am. J. Ophth., 1922, v, 227.*
- Sarcoma of the choroid. F. O. SAGLE. *Hahnemann Month., 1922, livii, 162.*
- Hyaline bodies at the disc, associated with night blindness. M. L. HEPBURN. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 13.*
- Inflammatory nodule above the right optic disc. R. L. REA. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 14.*
- A case of branching remnant of the hyaloid artery. H. NEAME. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 17.*
- Persistent hyaloid artery. W. A. SEDGWICK. *Am. J. Ophth., 1922, v, 222.*
- Thrombosis of the central vein of the retina. E. B. CAYCE. *Am. J. Ophth., 1922, v, 225.*
- Two cases of thrombosis of the retinal vein, one showing a hole, the other a star, at the macula. F. B. A. WILLIAMSON. *Brit. J. Ophth., 1922, vi, 67.* [65]
- Recurrent hemorrhages into the retina and vitreous of young persons. W. C. FINNOFF. *Am. J. Ophth., 1922, v, 195.* [66]
- Hemorrhage into the vitreous; tuberculosis of the retinal vessels. J. A. McCaw. *Am. J. Ophth., 1922, v, 219.*
- Multiple retinal hemorrhages. F. L. BRICK and G. L. STRADER. *Am. J. Ophth., 1922, v, 221.*
- Glioma retinae; with report of a case. J. M. KEYS. *Brit. J. Ophth., 1922, vi, 110.*
- Medullated nerve fibers. G. F. SIKER. *Am. J. Ophth., 1922, v, 220.*
- Senile changes of the optic nerve. E. FUCHS. *Am. J. Ophth., 1922, v, 215.*
- Primary intraneural tumors (gliomata) of the optic nerve. F. H. VERHOEFF. *Arch. Ophth., 1922, li, 120.*
- Extreme changes in the optic nerve of a child; avulsion? W. C. BANE and W. M. BANE. *Am. J. Ophth., 1922, v, 220.*
- Coloboma of the optic nerve (traumatic?). J. F. CUNNINGHAM. *Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Ophth., 14.*
- Prechiasmal intracranial tumors of the optic nerves. W. E. DANDY. *Am. J. Ophth., 1922, v, 169.* [66]
- Operations (collective review). J. A. McCaw. *Ophth. Lit., 1922, xviii, 24.*

Ear

- Acute tubo-tympanic catarrh. C. C. GORT. *N. York State J. M., 1922, xxii, 124.*
- The opening of parotid abscesses in the external auditory canal. M. FERRON. *Arch. franco-belges de chir., 1922, xiv, 332.*
- Headache and chronic mastoiditis. W. L. CULBERT. *Med. Rec., 1922, vi, 480.*
- The indications for opening the mastoid cortex. F. P. EMERSON. *Boston M. & S. J., 1922, cxxxvi, 301.* [67]

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

Some rhinological experiences in ophthalmology. G. SLIDER. *South. M. J.*, 1922, xv, 252.

External nasal deformities—description of the operative technique of a new method for the correction of certain types. J. D. LEWIS. *Laryngoscope*, 1922, xxxii, 214.

Epithascope demonstration of photographs illustrating the repair of nasal deformity caused by syphilis. D. GIFFMIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 9.

Rhinophyma: report of a case. S. ISRAEL. *Laryngoscope*, 1922, xxxii, 218.

A case of rhinolith presenting unusual features. R. FRANCIS. *Med. J. Australia*, 1922, i, 240. [68]

The question of hard (true) papilloma of the nose (*papilloma durum nasi*). K. KOFLER. *Monatsschr. f. Ohrenh.*, 1921, lv, 1407.

The effect of postoperative prophylactic permanent irradiation in carcinoma of the nasal cavity. G. HOFER. *Monatsschr. f. Ohrenh.*, 1921, lv, 1285.

Anterior rhinitis sicca: its origin and cure. F. HAZLEBURN. *Laryngoscope*, 1922, xxxii, 220.

The operative treatment of ozema with lead plate sutures. V. HINSBERG. *Monatsschr. f. Ohrenh.*, 1921, lv, 1409. [68]

Dust as a factor in the etiology of adenoids. F. VAN DER BOULET. *Med. Times*, 1922, i, 76.

Aberrant adenoid cystic epitheliomata of the salivary gland type. F. M. JOHNSON. *Ann. Surg.*, 1922, lxxv, 331.

The true cause of fibroma of the nasopharynx. G. FERRIER. *Monatsschr. f. Ohrenh.*, 1921, lv, 1268.

Further experiences in the treatment of typical fibroma of the nasopharynx. A. DENKER. *Monatsschr. f. Ohrenh.*, 1921, lv, 1250. [68]

Sinusitis as seen by the general practitioner. F. T. GASTINEAU. *J. Oklahoma State M. Ass.*, 1922, xv, 72.

Treatment of sinusal complications of otitic origin. G. FANTUZZI. *Polichin.*, Rome, 1922, xxix, sez. prat., 354.

Mucocele of the frontal sinus. J. ACOMB. *Brit. M. J.*, 1922, i, 344.

The frontal sinuses. L. C. KUYRKENDALL. *J. Oklahoma State M. Ass.*, 1922, xv, 65.

The treatment of malignant growths of the nasal accessory sinuses. E. M. WOODMAN. *Med. Press*, 1922, n.s. cxlii, 195.

Throat

Aluminum throat swabs. L. GRANT. *Brit. M. J.*, 1922, i, 434.

Syphilis of the throat. I. W. YOUNG. *J. Nat. M. Ass.*, 1922, xiv, 12.

The problems and aims of the surgery of the upper air and digestive tracts. T. GLUCK. *Monatsschr. f. Ohrenh.*, 1921, xlv, 1150.

Healthy tonsils. W. C. MOOMAW. *Virginia M. Month.*, 1922, xlviii, 708.

Tonsils and adenoids—what shall physicians tell their patients about them? I. W. VOORHEES. *Am. Med.*, 1922, xxviii, 151.

A plea for closer co-operation of the specialist and the pediatrician on the tonsil and adenoid question. E. L. RUSSELL. *J. Missouri State M. Ass.*, 1922, xiv, 113.

A non-surgical treatment of diseased tonsils. ROBINSON. *Am. J. Clin. Med.*, 1922, xxix, 180.

Treatment of focal infection of the throat by X-ray compared with surgical removal of tonsils and adenoids. W. D. WITHERS. *N. York M. J.*, 1922, cxv, 261.

Radiology of surgery in diseased tonsils. R. H. LAFERTY and C. C. PHILLIPS. *South. M. J.*, 1922, xv, 237.

The removal of tonsils and adenoids. G. T. BIRDWOOD. *Indian M. Gaz.*, 1922, lvii, 93.

Indications for tonsillectomy in children. R. M. DOWSER. *Med. J. Australia*, 1922, i, 261.

Tonsillectomy styloid process. J. A. BACHER. *California State J. M.*, 1922, xx, 99.

A new tonsil hemostatic forceps for ligation of vessels in the tonsil fossa and other deep cavities. H. V. DUTROW and A. G. FARMER. *Laryngoscope*, 1922, xxxii, 113.

The end-results of the removal of tonsils and adenoids. H. S. SINGTON. *Brit. M. J.*, 1922, i, 341.

Results of tonsillectomy in the tuberculous. W. CAMP. *J. Lancet*, 1922, n.s. xlii, 112.

On the use of radium to effect an atrophy of pharyngeal lymphoid tissues—a topical review. S. WITHERS. *Laryngoscope*, 1922, xxxii, 163.

A case of laryngeal web. W. H. KELSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 15.

A foreign body (piece of wire) removed from the right arytenoid cartilage by an indirect method. A. WYLIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 12.

Ventriculocordectomy: a new operation for the cure of goitrous paralytic laryngeal stenosis. C. JACKSON. *Arch. Surg.*, 1922, lv, 257.

A contribution to tumors of the larynx with an atypical course. J. BELEMER. *Monatsschr. f. Ohrenh.*, 1921, lv, 974.

Papilloma of the larynx in children: a report of eleven cases. S. J. CROWE and M. L. BRIETSTEIN. *Arch. Surg.*, 1922, lv, 275. [68]

Transplantation experiments with laryngeal papillomata. E. V. ULLMANN. *Monatsschr. f. Ohrenh.*, 1921, lv, 1717.

A pedunculated cancerous growth of the larynx. H. BURGER. *Monatsschr. f. Ohrenh.*, 1921, lv, 993.

Histological control of radium treatment in carcinoma of the larynx. J. G. CALLISON. *Laryngoscope*, 1922, xxxii, 180.

Intrinsic epithelioma of the larynx shown before operation. ST. C. THOMSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 10.

The technique of the Gluck total extirpation of the larynx. G. BOENNINGHACHS. *Monatsschr. f. Ohrenh.*, 1921, lv, 981.

Laryngectomy. G. W. CRILE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 305. [69]

Laryngectomy. R. WOODS. *Surg., Gynec. & Obst.*, 1922, xxxiv, 297. [69]

Pharyngeal speech in laryngectomized patients. P. SUDECK. *Deutsche med. Wchnschr.*, 1922, xlviii, 85.

Mouth

The operation for harelip and cleft palate. R. MILNER. *Zentralbl. f. Chir.*, 1922, xlix, 80.

Some considerations of cleft palate surgical technique. J. A. PETTIT. *Northwest Med.*, 1922, xxi, 52. [70]

The treatment of complex bilateral harelip. V. VEAU and J. LASCOMBE. *J. de chir.*, 1922, xix, 113.

Radium therapy of cancer of the mouth and throat. C. E. FIELD. *N. York State J. M.*, 1922, xxii, 121.

Histogenesis and evolution of the so-called mixed tumors of the salivary gland. I. ARACIL. *Arch. Ital. Otol.*, 1922, v, 87.

Glossoma of the tongue. F. PETREY. *Zschr. f. Path.*, 1921, LV, 314. [70]

The surgical emulcation of local infection in the jaws under local anesthesia. A. M. NORTON. *Dental Cosmos*, 1922, LXX, 315.

Osteomyelitis of the upper jaw in infants. M. S. MAYOR. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 18.

Pathology, diagnosis, and therapy of cysts of maxilla. R. FROSTHOLM. *Monatsschr. f. Ohrenh.*, 1921, LV, 1081.

Dental infection secondary to acute maxillary sinusitis: report of three cases. J. A. GRAMANN. *J. Am. M. Ass.*, 1922, LXXIII, 482.

Tumor of the malar bone and floor of the orbit. E. D. D. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 21.

Oral surgery, a department of gastro-enterology: medial viewpoint. G. R. HARRILL. *Med. Rev.*, 1922, 3, 408.

Oral surgery, a department of gastro-enterology: surgical viewpoint. J. W. DUNCAN. *Med. Rev.*, 1922, 3, 403.

INTERNATIONAL ABSTRACT OF SURGERY

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COLLECTIVE REVIEW

URETERAL CALCULUS

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MANY points concerning stone in the ureter remain unsettled. The diagnosis, in particular, presents difficulties. Therefore a summary of our present knowledge seems justified.

We are reminded by Keyser and Braasch (1) that speculation regarding the formation of urinary calculi has flourished since Hippocrates, yet the cause of the phenomenon remains unknown. Keyser and Braasch, in an admirable survey of the theories of etiology, conclude from a study of the literature that geographic distribution, race, heredity, age, diet, sex, and trauma have little bearing, but Ochsner (2) presents striking clinical evidence that the drinking of distilled water may prevent recurrences.

Keyser and Braasch believe that the clinical evidence of the cause of stone points to a local mechanism at work in the pelvis of the kidney. "The frequent occurrence of demonstrable foci of infection in patients with calculi, and the almost universal finding of infected kidneys associated with stone lend tremendous weight to the idea of a specific stone-forming infection. . . . There is little direct evidence that anatomical factors or stasis can initiate the stone-forming process, but their frequent association with calculus makes it seem likely that the stone-forming mechanism may work to better advantage under such conditions."

Hunner (3), on the other hand, states that ureteral stricture and the resultant stasis are important factors in the formation of calculi. Concerning the frequency of occurrence, Bugbee (4) observes that ureteral calculi are common.

Regarding the site of stone formation, Braasch and Moore (5), Geraghty and Hinman (6), Bugbee and Keyes (7) stress the renal origin of calculi. Judd (8) states, however, that apparently small stones may occasionally form in the ureter, possibly at the site of a stricture. Lespinasse (9) observes that ureteral stones are rarely formed in the ureter, but Hunner believes that they often arise primarily in a ureteral stricture.

Geraghty and Hinman state that the points at which stones are most apt to lodge are the three narrowings along the course of the normal ureter, the first at the ureteropelvic junction, the second where the ureter bends into the pelvis, and the third at the point of juncture of the ureter with the bladder, but that the factors influencing the migration of a calculus along the ureter are numerous. For example, a stone may be arrested by abnormal contraction or its rough surface may catch in the mucosa or produce injury causing obstructive congestion or oedema. Sometimes local infection is responsible, or the calculus may be caught in a diverticulum. Finally, the variation in the contractility of ureters and their varying reactions to the trauma of calculi influence the passage of the stones.

Keyes adds that a stone may be arrested by a stricture. The shape of the stone rather than its size determines its liability to retention. Bugbee has observed that calculi may become lodged at almost any point along the ureter. Observers agree, however, that they are most frequently arrested in the lower ureter. Judd, for example, found 198 stones in the lower third of the ureter, fifty-three at the ureterovesical junc-

tion, and thirty-two in the intramural portion. Jeanbrau (10), in 204 observations, found the stone in the pelvic ureter in 51 per cent. Bugbee found eighty-six of a series of 107 ureteral calculi lodged in the lower 12 centimeters, and sixty-five of these in the last 6 centimeters. Braasch and Moore observed that, quite strangely, impacted calculi were not lodged exactly at the points of normal ureteral narrowing but were arrested a short distance above them. Bugbee states that few calculi pass through the lower 3 centimeters of the ureter without becoming impacted at least temporarily. Judd encountered bilateral ureteral calculi in only five of 400 cases.

The subjective manifestations of ureteral calculus vary. Bugbee observes, for example, that eighty-six of 107 patients with ureteral stone gave a history of pain on the affected side, and four, a history of referred pain on the opposite side; sixty-five had a definite colic, forty-five reporting from two to eleven attacks; and thirty-five gave a history of having passed calculi. Braasch and Moore state that pain caused by stone in the ureter is due to two factors: (1) intrarenal tension resulting from urinary obstruction, and (2) localized changes due to infection. Mechanical irritation caused by the stone itself seldom produces pain.

In a series of 204 cases of ureteral stone analyzed by Braasch and Moore the pain was referred chiefly to the kidney region in 197, to the upper abdominal quadrant in forty-five, to the region of the lower ureter in twenty-eight, and to the suprapubic area in three. There was no definite radiation of pain in sixteen cases, and no pain whatever in five cases. Eisendrath (11) also observes that, in the absence of colic, the fixed pain associated with ureteral calculus is spread over a wide area of the abdomen and is without characteristic localization or radiation. The diagnosis is not apt to be made solely from the subjective symptoms. Braasch (12) states that in view of the symptomatic obscurity of ureteral stone it has become a rule at the Mayo Clinic to make a roentgen-ray examination under the following conditions: (1) when abdominal pain is not definitely localized, as, for example, in the gall-bladder, the appendix, or the pelvis; (2) when, though the pain is definitely localized in these parts, there is pus or blood or a history of pus or blood in the urine; and (3) when, in the absence of abdominal pain, there is a history of pus or blood or the presence of microscopic pus or blood in the catheterized specimen. Geraghty and Hinman state that it is impossible to determine the position or even the presence of a

ureteral calculus from the character and location of the pain, and that for the diagnosis we have come to depend almost entirely upon the data furnished by special methods of exploration and examination.

Bugbee observes that of sixty-five patients with a stone lodged in the last 6 centimeters of the ureter, fifty-six complained of urinary symptoms, and Braasch and Moore state that vesical irritability was present in 218 of 204 cases of ureteral calculus. Although these and other symptoms are significant, Lewis (13) informs us that the syndrome of ureteral stone is not a reliable basis for diagnosis. Its chief value consists in suggesting methods of investigation which should prove determinative. According to Young (14), a stone may be silent or may simulate various urinary lesions or lesions remote from the urinary tract. Sometimes a typical syndrome is present in the absence of stone. Indeed according to Young, it is in the symptomatically atypical case rather than the so-called typical case that a ureteral calculus is found.

Ochsner, however, considers a carefully taken history as the most important element in the diagnosis since diagnoses based upon such histories are most frequently confirmed by the roentgenological and other laboratory findings. Sanes (16) remarks that in a good history one can always find data that suggest an investigation of the urinary tract.

A diagnostic complication of importance is the silence of ureteral stone which sometimes is prolonged. Cabot (15) states encouragingly, however, that in spite of the unreliability of single signs and symptoms it would be fairly safe to assume that the absence of characteristic colic, a normal urine, and a negative X-ray examination is a combination of extreme rarity. Keyes observes that the diagnostic difficulty involves only the smallest stones; the others will be revealed by the roentgenogram or by the wax bulb or will give rise to secondary changes such as dilatation discoverable by pyelography and ureterography, deficiency of renal function, or infection. Judd, also, stresses the fact that the combination of X-ray investigation and the use of the wax tip has considerably reduced the possibility of error.

Regarding palpation of the stone, Braasch and Moore state that this is rarely possible through the abdominal wall, although in one instance a calculus could be rolled under the hand on deep pressure in the inguinal region. Upon removal, this stone was found to be 4 inches long and 1 inch in diameter. Israel (17) felt a stone

through the vagina and rectum in 30 per cent of his cases. Braasch and Moore were able to palpate through the rectum only three of forty-eight calculi in the lower ureter in males and to palpate through the vagina only seven of thirty-two calculi in females. They state that if a stone is to be definitely felt through the vagina it must be at least a centimeter in diameter and situated within or immediately adjacent to the bladder wall. Bugbee palpated a calculus through the vaginal vault in eleven cases, and through the rectum in males in four cases. In one of the writers' cases the calculus felt stony hard in sharp contrast to the surrounding tissues and was detected very easily. Of bilateral ureteral stones palpated through the vaginal vault by Barringer (18), one felt hard but the other seemed less dense. Parker (19) felt an enormous calculus through the rectum in a man and recognized it as a foreign body. Braasch and Moore note, however, that, in the male, inflammatory indurations or swellings about the prostate or seminal vesicles may prove confusing in rectal palpation. It appears, therefore, that the stony hardness of calculi is not always manifest to the examining finger.

Urinalysis, according to Braasch and Moore, is not of great value in the diagnosis of ureteral calculus since a few red blood cells or pus cells are found in the urine in cases of slight lesions of the lower urinary tract. Their presence, however, demands an X-ray investigation of the entire tract. Geraghty and Hinman, on the other hand, note that red blood corpuscles are rarely absent in the presence of a stone. Blood in the urine, either evident or microscopic, does not, of course, prove the presence of stone, but its complete absence strongly indicates the absence of a calculus. In this, Harpster (20) and Fowler (21) concur. Braasch and Moore state that gross hæmaturia was reported in forty-one of 294 cases of ureteral stone.

Roentgenography, according to Geraghty and Hinman, is the most important aid in the detection of ureteral calculi. In a series of sixty-seven cases the X-ray missed the stone in only fifteen (22.4 per cent). Judd states that it revealed the calculus in 60 per cent of 400 cases, and Cabot reports only eight negative X-ray examinations in 127 cases, a failure of 6 per cent. Cabot believes, however, that the average failure is about 15 per cent. Bugbee received positive X-ray reports in fifty-six of seventy-eight cases, and Young states that the percentage of failure in examinations made by skilled roentgenologists varies from 6 to less than 1 per cent. In a review

of the literature Merritt found that the X-ray findings were positive in about 75 per cent of the cases.

Regarding the causes of error in the X-ray diagnosis of ureteral stone, Braasch and Moore state that more failures are due to incorrect interpretation of shadows than to failure to show them. Roentgenographic data alone can be relied upon to diagnose ureteral calculus in not more than 60 per cent of the cases. The causes of failure are:

1. Errors in the roentgenographic technique. These cannot be completely eliminated.
2. The shadow of the pelvic bones which may obscure the stone shadow. Sometimes a change in the angle of the ray will exclude the shadow of the bones.
3. The small size of the stone. A calculus may be so small that its shadow will be misinterpreted or overlooked in the roentgenogram. In this connection it may be said that observers agree that the size of the stone bears no relationship to the severity of the symptoms.
4. Absence of calcium in the stone. Stones of this variety, which are rare, throw no shadow. Geraghty and Hinman state, however, that in one case with a stone in the upper lumbar portion of the ureter, and in another with a stone in the pelvic portion of the ureter, excellent roentgenograms were negative although analysis showed one stone to consist chiefly of calcium phosphate and carbonate and the other of calcium phosphate and oxalate.

Graves (23) reports an instructive case in which the ureteral catheter met an obstruction 3 centimeters from the bladder and the ureterogram with the catheter *in situ* revealed an oval area of decreased density within the shadow of the filled ureter at the tip of the catheter and a well-marked ureteral dilatation above this area. The patient passed a stone a few days after leaving the hospital. In another case in which Graves observed a similar phenomenon in the renal pelvis a stone composed of pure cystin was removed from the kidney pelvis by operation. Graves states that following the injection of an opaque solution into the ureter and renal pelvis, invisible stones may sometimes be shown by negativity.

Merritt reminds us that the chief confusing shadows revealed by the X-ray are those due to phleboliths and pathologic lymph nodes. According to Eisendrath, an alternation of darker and lighter areas in the shadow is quite characteristic of calcified lymph nodes. Gall-stones also are of varying density as their shadows usually have a dark periphery and a lighter center.

The shadows of ureteral calculi are uniform. Braasch and Moore state, however, that such data cannot always be relied upon. Adams (24) observes that the shadows of ureteral calculi are usually elongated or bean-shaped and have one pointed extremity, while those of phleboliths are spherical. Doubt may usually be dispelled by the passage of the shadowgraph catheter. If the diagnosis is then not clear, resort may be had to the ingenious method of Kretschmer (25), whereby a double exposure on the same plate with the catheter *in situ* is obtained by moving the tube slightly and refocusing while the patient and the plate remain stationary.

Young notes that stereoscopic plates possess value, but Braasch and Kretschmer remind us that such plates occasionally mislead, in which event the ureterogram is more informative.

When the roentgenogram fails to reveal the stone Eisendrath follows the suggestion of Kuemmel, injecting merely enough solution through the catheter to coat the calculus and intensify its shadow. Eisendrath mentions also the value of ureterography and pyelography in showing the localized dilatation about the stone and the dilatation of the ureter and kidney pelvis above it. Geraghty and Hinman report an instance in which ureterograms, by incidental accentuation of the shadow, disclosed a hitherto unrevealed ureteral stone. Eisendrath states that when a suspected shadow is obscured by reason of its position over the shadow of the sacrum, a careful examination should be made of the dry plate and another roentgenogram should be taken from an angle which will free the suspected shadow from that of the bone (Braasch and Moore).

Geraghty and Hinman employ the wax tip if there is question regarding the extra- or intra-ureteral location of a shadow or if the X-ray fails to reveal a suspected stone. They believe that the use of the wax tip is the most accurate method of detecting ureteral calculi, provided the wax is protected from scratches before it enters the ureter. In two years six stones which had been missed by the X-ray were revealed by this method. Keyes observes, however, that very small stones occasionally escape detection even by the wax bulb. Keyes missed three, and Geraghty and Hinman missed one which lay in a ureteral pouch but was later visualized by the ureterogram.

Regarding the differential diagnosis, Braasch and Moore state that the radiation of pain to the upper abdominal quadrant in a number of instances was so characteristic of gall-bladder

disease that in the absence of urinary findings surgical exploration of the gall-bladder would have been justifiable without a preliminary roentgenographic examination, and in some cases the referred pain of stone in the lower ureter may be so suggestive of appendicitis that, if the urinalysis is negative, an exploration of the appendix might be justifiable without preliminary roentgenographic examination. Eight patients of 294 gave a history so suggestive of intestinal obstruction that three of them had been operated upon elsewhere for that condition. In twelve cases the chief complaints were nausea, epigastric distress, and indigestion.

Observers agree regarding the frequency with which sufferers from ureteral calculus undergo unnecessary operations based upon erroneous diagnoses. Eisendrath, therefore, stresses the importance of a study of the urinary tract in every thorough examination of the abdomen, especially when there is a history of colic, fixed or radiating pain, or macroscopic or microscopic hematuria. Young concludes that in all cases with indefinite symptoms, such as recurrent or chronic pain in the abdomen or back, even those presenting a definite orthopedic abnormality, a careful, repeated examination of the urine should be made, including the microscopic examination of the centrifugalized sediment, regardless of the presence or absence of albumin. In the female, a catheter specimen is essential. Whenever operation is considered in any one of this group of cases, roentgenoscopy is also necessary. Bugbee observes that calculi in the lower ureter may cause symptoms so like those of appendicitis that it has become almost routine to pass a ureteral catheter in all cases of pain on the right side. In the diagnosis of calculi lodged in the upper ureter gall-stone colic and acute gastric and intestinal conditions must be excluded. Pelvic disease and acute intestinal lesions must be differentiated from calculus in the lower ureter. Ochsner warns us that we must consider all points as a whole and should place no weight on negative findings obtained by any one of the various diagnostic methods employed. The inconclusiveness of single diagnostic measures is indicated by Judd in the observation that the roentgenogram and obstruction of the ureteral catheter alone are suggestive in only 60 per cent of the cases.

The difficulties in the differentiation between ureteral calculus and appendicitis are well exemplified by the observation of Kielleuthner (26) that in both conditions the pain may be localized at McBurney's point. The gastro-intestinal symptoms, arrest of peristalsis, vomiting, meteorism, bladder symptoms, and dysuria are common

to both affections. Increased temperature and rapid pulse may also be present in both. Apparently, even the diagnosis of acute appendicitis may occasionally fall under suspicion. The writers contend that a diagnosis of chronic appendicitis is never tenable unless a roentgenogram of the right ureter is negative. If at operation the appendix then appears normal, the lower ureter should be palpated through the incision.

Concerning the differentiation between ureteral stone and other conditions within the urinary tract which simulate it, Eisendrath reminds us that any lesion which causes a sudden increase in intrarenal tension will induce symptoms identical with so-called renal colic. Such an increase of pressure may occur: (1) when particles of tumor mass, blood clots, or pus detritus escape into the ureter; (2) in cases of renal or ureteral infection; (3) in nephritis; (4) in ureteral stricture; and (5) in kinking of the ureter such as that due to a movable kidney or compression of the ureter by an accessory artery to the lower pole of the kidney.

Concerning the relative size of calculi as regards their location, Braasch and Moore state that the larger stones usually lodge in the upper ureter. Those observed by Braasch (28) in the lower ureter average about 1 centimeter in length and .5 centimeter in width. Of particular interest, therefore, are the unusual reports in the literature of giant calculi in the lower ureter. Parker, for example, removed by suprapubic cystotomy a ureteral stone weighing $\frac{3}{4}$ ounce, and Tuffier (29) removed by the same method a calculus even larger. Buerger (30) removed two large calculi, one a club-shaped stone $2\frac{1}{8}$ inches in length and $1\frac{1}{8}$ inches at its widest end, and the other 4 inches in length. Braasch and Moore palpated a stone through the abdominal wall in the inguinal area which, on removal, was found to be 4 inches long and 1 inch in diameter. Kidd (31) removed a calculus weighing 1 ounce, and Ley (32) removed one weighing 2 ounces and 2 drams. Abell (33) reports the removal of a stone 7.5 centimeters in length, 7 centimeters in circumference at its largest part, and weighing 24 grams. Abell has gathered from the literature reports concerning other large calculi. Pool (34) reported an unusual case of multiple calculi and pyonephrosis; twelve stones lay in a pouch of the pelvic ureter like eggs in a nest.

Concerning ureteral stricture, Caulk and Fischer (35) demonstrated experimentally, by tying off the ureters in dogs, that the lumen of the ureter invariably became re-established in from six to eight weeks after ligation with catgut. They conclude, therefore, that ureteral strictures

are rare. From the clinical standpoint Judd observes that, even when the stone has ulcerated through the ureteral wall and lies in an abscess cavity, there is little or no evidence of organic stricture.

Regarding the fate of ureteral stones, Braasch and Moore stated in 1915 that most calculi probably pass spontaneously, and more recently Braasch (36) stated that 75 per cent are apt to pass unaided. According to Bugbee, 50 per cent of ureteral stones will pass. Bevan (37) believes that unless urgent symptoms arise, calculi the size of a coffee berry or smaller should be left alone, as many of them will pass normally. Statistics gathered by Geraghty and Hinman show that a large percentage of small stones in any portion of the ureter will be spontaneously expelled, and Ochsner observes that the primary stone will usually pass if it becomes started.

Concerning cystoscopic measures designed to assist the passage of ureteral stones, Ehrich (38) reminds us that Lewis suggested these methods in 1904 but urologists for some time failed to appreciate their value. The methods enumerated by Braasch and Moore are: (1) catheter manipulation, (2) the injection of sterile glycerin or oil, (3) fulguration, (4) ureteral dilatation, (5) cutting of the meatus, and (6) the use of ureteral forceps. Lespinasse has devised an ingenious dilating stone or cork with a central perforation for the passage of the urine. Judd (39) states that the cystoscopic technique is so successful that in the majority of cases of stone in the lower third of the ureter it must be considered the treatment of choice. Merritt observes that fully 90 per cent of ureteral stones may be removed by conservative methods, and Bugbee believes that 75 per cent will be passed following intra-ureteral manipulation. Young states, however, that a relatively large percentage of the ureteral calculi he observes are apparently too large to pass spontaneously or in response to non-operative measures.

With regard to the effect upon the kidney of retained ureteral stones the problem of obstruction must be considered. According to Bugbee, sudden, complete occlusion of the ureter may cause immediate cessation of renal function or hydronephrosis from continued function without exit for the urine. Partial, incomplete, or recurring ureteral obstruction causes slow dilatation of the ureter, the renal pelvis, and the calyces, back-pressure upon the urinary tubules, congestion of the kidney parenchyma with varying degrees of decreased function, and always, unless relieved, infection and finally kidney destruction.

Barney (40) states that sudden complete occlusion of one ureter, either experimental or clinical, may produce no symptoms and that uninterrupted recovery will follow in 21 per cent of the cases. Pain and tenderness in the kidney subsiding spontaneously is to be expected in 26 per cent. Infection of the kidney due to or aggravated by occlusion requires subsequent nephrectomy in 15 per cent of the cases. One ureter may be completely blocked for ten days without destroying the integrity of the kidney. Of 15 cases in which the subsequent condition of the kidney was investigated, moderate hydronephrosis was found in 80 per cent. The effect upon the kidney of complete ureteral obstruction was well demonstrated by Caulk and Fischer in their bilateral ureteral ligations in dogs. Invariably the kidney relieved by drainage (nephrotomy) remained well preserved whereas the undrained kidney soon became hydronephrotic. If the kidney is to be conserved the obstruction must be relieved within two weeks. As the period of observation is usually six months in length, Keyes collected the reports of cases in which a stone remained in the ureter longer than six months after the original colic without causing permanent damage to the kidney. These were as follows: nine to twelve months, five cases; twelve to eighteen months, three cases; and eighteen to twenty-six months, six cases. Keyes does not cite these figures as a guide to treatment. Merritt and Lespinasse agree that for the preservation of the kidney all ureteral stones should be promptly removed, preferably by conservative methods.

The emergency created by ureteral obstruction of the sole remaining kidney, the only functioning kidney, or both kidneys is obvious. Facts to be borne in mind in the treatment of cases of bilateral stone are given by Keyes as follows:

1. The kidney with the better function should be operated on first.
2. The kidney showing acute symptoms is usually the sounder organ.
3. Impaction of a stone in the ureter of the sounder kidney may temporarily reduce its function below that of its fellow. Under such conditions it is safer to operate first upon the side with the ureteral stone.
4. Simultaneous bilateral operation may be attempted if the patient's condition is relatively good and the first operation not unduly long.
5. In an emergency, such as anuria, the sole object of operation should be to establish drainage of the kidney, usually by pyelotomy. In cases of anuria the operation should be bilateral.

Frank (41) describes anuria due to unilateral obstruction by a calculus. According to Martin (42), Watson (43), and others, the unobstructed kidney in such cases is never normal, but Gotal (44) produced anuria by the ligation of a single ureter in dogs with presumably normal kidneys. Frank believes that anuria may be due to sudden, intense congestion of the unobstructed normal kidney resulting from inability of the efferent vessels to carry off the blood and the consequent stoppage of the urinary excretion. Tolerance for anuria of the obstructive type is surprising. Harpster cites the case of a man who lived with this condition for twelve days. Demon (45) reports a case operated upon the eleventh day, Chevalier (46) a case operated upon the fourteenth day, Paget (47) a case operated upon the twentieth day and Russell (48) a case operated upon the twenty-eighth day. In each instance the patient recovered. Nevertheless, Frank warns us that relief should be afforded promptly, preferably by pyelotomy on the obstructed side. As confirmation of his theory Frank reports a case of anuria in which three small stones were lodged low in the left ureter. Through a catheter passed up beyond the two lower stones a little turbid urine escaped. When a catheter was passed to the right kidney pelvis no urine flowed, and the catheter was therefore removed. The catheter on the left side was left in place. The following day urine in moderate amount was passed through the indwelling ureteral catheter and also through the urethra. Recovery followed. Frank believes that unilateral calculous anuria is not infrequent as he has seen five cases and has collected 188 reports of the condition from the literature.

Regarding the treatment of cases of uncomplicated ureteral calculi Judd voices the prevailing opinion that small stones, particularly those in the lower ureter, will usually pass spontaneously or may be caused to pass by conservative methods. The delay of open operation should not be unduly prolonged, however, because of the danger of kidney destruction. Radical measures are indicated by the following conditions: (1) stones 3 centimeters or more in diameter, (0.5 centimeter in diameter, Keyes), (2) acute impaction with continuous obstruction, (3) acute renal infection, (4) the patient's intolerance to cystoscopic manipulation, and (5) anatomical deformity. For extreme cases in which the kidney has been destroyed Judd advises nephrectomy leaving the stone *in situ*. Twice, however, he has been compelled to remove the stone from the ureter later because of pain. Braasch (49) states that following nephrectomy a large, irregular ureteral stone

should always be removed at a second operation. In the series of 400 cases of ureteral stone reported by Judd, fifty-one nephrectomies were done. According to Keyes, large stones impacted in the ureter invariably call for nephrectomy as the kidney is destroyed. Judd states that in the absence of acute renal infection conservative methods are in order. We are thus confronted with the problem of whether or not to remove a functionless, hydronephrotic organ. The observation of Caulk and Fischer that kidneys die and atrophy following accidental ligation of the ureter without apparent impairment of health is suggestive.

Concerning the contra-indications to operation Braasch states that unless the symptoms are decidedly acute, operation should not be undertaken if the renal function is low. Unless the surgical conditions are urgent, operation is inadvisable in the presence of chronic nephritis, but when there is bilateral pyelonephritis stones should be removed even though the symptoms are mild. Operation during the later months of pregnancy is inadvisable unless necessitated by acute symptoms.

In discussing the incision Judd advocates the Mayo kidney incision for stones located at the uretero-pelvic junction or anywhere in the upper third of the ureter, a straight rectus incision with extraperitoneal approach for a stone or stones in the lower two-thirds on one side, and a mid-line incision with extra-peritoneal approach for bilateral calculi. The writers favor the Gibson incision to approach the lower ureter. This begins a finger-breadth above the symphysis in the median line, passes outward parallel to Poupart's ligament, and follows the pelvic curve upward to a point slightly medial to, and $1\frac{1}{2}$ inches above, the anterior-superior spine. The fascia of the external oblique is incised along the same line and the flap dissected inward. An incision is then begun above across the thin fibers of the internal oblique at their juncture with the rectus and is continued obliquely downward along the edge of the rectus through the transversalis fascia and the conjoined tendon. The deep epigastric vessels are severed and tied and the unopened peritoneum is reflected toward the median line. Watson (50) utilizes a somewhat lengthened McBurney incision with an extra-peritoneal approach for calculi in the parietal portion of the pelvic ureter. Battle (51) describes a method applicable to stones in the pelvic portion of the ureter whereby through one, incision the stone is located and fixed with the fingers of one hand intraperitoneally and with the

other hand the peritoneum is freed from the abdominal wall until the ureter is exposed. The stone may then be removed extraperitoneally. Transperitoneal ureterolithotomy is nearly or quite obsolete. Lowsley (52) has devised a perineal route to the lowest part of the ureter in the male, and Bevan has used a similar approach. Bryant (53) in 1908 described the vaginal removal of ureteral calculi. Keyes (54) stated in 1910 that a large stone near the bladder may be removed through the vagina, but if it is at all movable it is fixed in position with great difficulty and may slip up the ureter out of reach. Recently, however, there has been scant mention of the method. Ochsner observes that he has used it but once. In enumerating the methods of reaching ureteral stones in the pelvic ureter, Watson states that most of the parasacral, rectal, perineal, and vaginal routes have been abandoned because of the danger of infection and the difficulties of technique.

Regarding the points of practical value in the technique of ureterolithotomy Lewis suggests that preliminary catheterization may facilitate the finding and identification of the ureter and stone, and Judd reminds us that the ureter usually may be found adjacent to the posterior surface of the peritoneum. Judd also emphasizes the inaccessibility of stones deep in the pelvis. Fortunately calculi lodged near the bladder are usually of fair size since the small ones as a rule pass spontaneously or may be made to pass by non-operative measures. The writers surmise that if remote stones are large enough to be readily palpated, they can generally be freed and worked upward to a more accessible position by the fingers extraperitoneally through any of the sufficiently ample suprapubic incisions.

Bevan notes the tendency of ureteral stones to slip out of the fingers and become lost. In this event it may be necessary to make a second incision over the kidney in order to reach the wandering calculus in the upper ureter or the kidney pelvis. Bevan suggests the use of blunt hooks about the ureter, one above and one below the stone, to fix it for removal. The writers have used guy sutures. In this connection Hunter (55) reports a remarkable case in which the cigar-shaped shadow of a calculus deep in the pelvis was twice shown by the X-ray at intervals but in each instance exploration of the lower ureter was negative. Later the stone was removed from the kidney pelvis. Apparently, when the patient was up and about, the calculus gravitated to the lower ureter, but after she had been confined to bed for a short time it returned to the kidney pel-

vis. Braasch and Moore state that when there is an interval between the examination and the operation a second X-ray examination should be made just prior to the operation to determine whether the stone has been passed or has altered its position.

Lewis warns us that complete stripping of the ureter is inadvisable because it interferes with the blood supply. Abell was impressed in one case by the fibrolipomatous thickening about the ureter which rendered difficult its separation from the surrounding structures. Bevan states that suture of the ureter is unnecessary since the leakage of urine is usually slight. Gibson and Judd, however, prefer to suture the ureter. Drainage with rubber rather than gauze should always be employed. Braasch observes that usually there will be no leakage from the bladder by way of the remaining ureter following nephrectomy. In two instances, however, such leakage necessitated ureterectomy.

Regarding the mortality of operations for the removal of ureteral calculi Keyes observes that ureterotomy is almost devoid of danger, and Judd reports only two deaths following operation in 400 cases even though nephrectomy was performed in fifty-one instances.

Concerning the cure of cases of ureteral calculi Cabot states that of twenty-one patients operated upon, fifteen (71 per cent) were well and six (28 per cent) were not well. The criteria of cure were a normal urine and a negative X-ray examination, i.e., the absence of pus, blood, and albumin from the urine and the absence of an X-ray shadow which might be interpreted as that of a stone. Robins (56) concurs in the opinion that postoperative recurrences are frequent and believes that a more careful re-examination of patients after an interval would modify our surgical optimism. Braasch, on the other hand, concludes that the percentage of recurrence of renal lithiasis (ureteral stones are usually of renal origin) is less than 10 per cent. This estimate was based upon a thorough re-examination of eighty-eight of 450 patients and 287 replies to letters of inquiry, the latter being checked up by urinalysis when indicated. The data regarded as evidence of recurrence were positive X-ray findings in thirteen instances, positive symptoms and urinalysis in fifteen instances, and the passage of stones after operation in eighteen instances. Judd reports that 90 per cent of 400 patients were ultimately relieved of their symptoms after operations for ureteral calculi.

The conclusions which may be drawn from this study are as follows:

1. The etiology of ureteral calculus is still unknown.
2. Since the history of ureteral calculus may be obscure, it should be taken with the greatest care.
3. The diagnosis of ureteral calculus should not be abandoned until every diagnostic expedient has proved negative.
4. Many small stones pass spontaneously.
5. Many more may be made to pass by intra-ureteral manipulation.
6. As the diagnosis is often late, open operation should not be delayed unduly (fifty-one nephrectomies in 400 cases).
7. A kidney incision affords access to the upper ureter, and a suprapubic incision, either median or lateral, if ample, gives extraperitoneal approach to the lower ureter.
8. The operative mortality of ureterolithotomy is low.
9. A symptomatic cure is obtained in a large percentage of cases.

BIBLIOGRAPHY

1. KEYSER, L. D., and BRAASCH W. F. The etiology of urinary lithiasis. Collective review. *Int. Abst. Surg.*, 1922, xxxiv, 1.
2. OCHSNER, A. J. Stone in the kidney and ureter from the standpoint of the clinical surgeon. *J. Am. M. Ass.*, 1919, lxxviii, 1105.
3. HUNTER, G. L. The etiology of ureteral calculus. *Surg., Gynec. & Obst.*, 1918, xxvii, 152.
4. BUGBEE, H. G. A clinical study of lithiasis based on a series of 198 cases. *J. Am. M. Ass.*, 1917, lxi, 1492.
5. BRAASCH, W. F., and MOORE, A. B. Stones in the ureter. *J. Am. M. Ass.*, 1915, lxi, 1234.
6. GERAGHTY, J. T., and HINMAN, F. Ureteral calculi, special means of diagnosis and newer methods of intravesical treatment. *Surg., Gynec. & Obst.*, 1915, xx, 515.
7. KEYES, E. L., Jr. Problems concerning urinary calculi. *Am. J. M. Sc.*, 1921, clx, 154.
8. JUDD, E. S. The results of operation of removal of stones from the ureter. *Ann. Surg.*, 1920, lxxi, 128.
9. LESPOINTE, V. D. An experimental and clinical study of kidney and ureteral stones, with a cystoscopic method for their removal. *Surg., Gynec. & Obst.*, 1918, xxiv, 631.
10. JEANIERAC. Quoted by Geraghty and Hinman.
11. EISENDRATH, D. N. The diagnosis of ureteral calculi. *Surg., Gynec. & Obst.*, 1918, xxviii, 451.
12. BRAASCH, W. F. Discussion. *J. Am. M. Ass.*, 1917, lxi, 1495.
13. LEWIS, B. Diagnosis of ureteral diseases with their surgery. *Surg., Gynec. & Obst.*, 1917, xlv, 609.
14. YOUNG, E. L., Jr. The clinical diagnosis of lithiasis of the upper urinary tract. *J. Am. M. Ass.*, 1917, lxi, 1490.
15. CABOT, H. Stone in the kidney and ureter; a critical review of 157 cases. *J. Am. M. Ass.*, 1915, lxi, 1233. Idem. A symposium on renal lithiasis; errors in the diagnosis of renal and ureteral calculus. *Surg., Gynec. & Obst.*, 1915, xxi, 403.

16. SANES, K. I. Ureteral obstruction: failure to recognize the condition as a frequent cause of unnecessary operation. *J. Am. M. Ass.*, 1912, lxxviii, 425.
17. ISRAEL. Quoted by Braasch and Moore.
18. BARRINGER, E. D. Bilateral ureteral calculi, anuria, recovery without operation. *Med. Rec.*, 1917, lxi, 702.
19. PARKER, R. Large calculus of the ureter removed by suprapubic cystostomy. *Brit. M. J.*, 1926, July 21.
20. HARRIS, C. M. Discussion. *J. Am. M. Ass.*, 1917, lxi, 1497.
21. FOWLER, H. A. Discussion. *J. Am. M. Ass.*, 1917, lxi, 1496.
22. MYERITT, L. P. A consideration of ureteral stones; their removal by the aid of the operating cystoscope; report of cases. *Surg., Gynec. & Obst.*, 1918, xxviii, 538.
23. GRAVES, K. C. Note on the diagnosis of shadowless renal calculi. *Ann. Surg.*, 1927, lxxv, 487.
24. ADAMS, J. E. Urinary calculus in the pelvic portion of the ureter. *Lancet*, 1915, cxxxviii, 857.
25. KRETSCHMER, H. L. A new procedure for the localization of ureteral stone. *Surg., Gynec. & Obst.*, 1918, xxviii, 472.
26. KIELLEUTHNER. Abstract. *J. Am. M. Ass.*, 1921, lxxvii, 741.
27. GIBSON. Da Costa's Modern Surgery, Philadelphia: Saunders, 1919. Ed. 8, p. 1445.
28. BRAASCH, W. F. Personal communication.
29. TUFFIER. Quoted by Parker.
30. BETHGIER, L. Large ureteral calculus. *New York M. J.*, 1914, c, 1193.
31. KIDG, F. A calculus of unusual size removed from the ureter by operation. *Lancet*, 1920, cxcviii, 180.
32. LEY, R. L. A large ureteral calculus associated with pyonephrosis. *Lancet*, 1920, cxcviii, 767.
33. AMELL, I. Giant ureteral calculus. *Surg., Gynec. & Obst.*, 1916, xxvii, 33.
34. POOL, E. H. Multiple ureteral calculi and pyonephrosis. *Ann. Surg.*, 1917, lxi, 260.
35. CAULK, J. R., and FISCHER, R. F. An experimental study of ureteral ligation, demonstration of late results to ureter and kidney. *Surg., Gynec. & Obst.*, 1925, xxx, 343.
36. BRAASCH, W. F. Conditions contra-indicating operation with stone in the kidney and ureter. *J. Am. M. Ass.*, 1920, lxxiv, 178.
37. BEVAN. Discussion of Eisendrath's paper.
38. EICH, W. S. Removal of ureteral calculus by the cystoscopic method. *J. Am. M. Ass.*, 1917, lxi, 1018.
39. JUDD, E. S. Surgery of the ureter. *J. Am. M. Ass.*, 1921, lxxvii, 399.
40. BARNES, J. D. The effects of ureteral ligation: experimental and clinical. *J. Am. M. Ass.*, 1912, lviii, 1300.
41. FRANK, L. Anuria due to unilateral calculous obstruction. *Surg., Gynec. & Obst.*, 1915, xx, 526.
42. MORRIS. Quoted by Frank.
43. WATSON. Quoted by Frank.
44. GOTTL. Quoted by Frank.
45. DEMON. Quoted by Frank.
46. CHEVALIER. Quoted by Frank.
47. PAGET. Quoted by Frank.
48. RUSSELL. Quoted by Frank.
49. BRAASCH, W. F. Clinical data on nephrolithiasis. *Surg., Gynec. & Obst.*, 1917, xxiv, 8.
50. WATSON, J. H. Ureteral stone. *Brit. M. J.*, 1915, i, 993.
51. BATTLE, W. H. The removal of stones from the pelvic portion of the ureter. *Brit. M. J.*, 1921, i, 6.
52. LOWSLEY, O. S. A perineal operation for the removal of stone in the lower end of the male ureter. *Surg., Gynec. & Obst.*, 1921, xxxii, 300.
53. BRYANT. *Operative Surgery*, 1908, Vol. ii, p. 1065.
54. KEYES, E. L., Jr. *Genito-Urinary Diseases*, 1910, p. 850.
55. HUNTER, J. W. Discussion. *J. Am. M. Ass.*, 1917, lxi, 1496.
56. ROBINS, C. R. Recurrence of stone in the kidney. *Surg., Gynec. & Obst.*, 1918, xxvii, 270.

ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Hoessner, L.: Some Notes on Plastic Operations.
Surf., Gynec. & Obst., 1922, XXIV, 532

There are free and pedicled grafts; also combinations of free and pedicled grafts, such as the Italian plastic graft which becomes a free graft after its pedicle is severed.

Free grafts are advantageous in that they may be twisted or turned into any position, may be taken from any area however distant, and are obtainable in any quantity. They are disadvantageous because they become islands surrounded by permanent scar, normal elastic fibers do not grow through them, lymph vessels never pierce them, it is questionable whether the blood vessels and nerves which in time invade them ever become entirely normal, they never completely resemble the tissue replaced, they have a tendency to turn blue when exposed to the cold, they may become oedematous, and they do not well withstand infection and injuries due to pressure and bruises.

The advantages of pedicled flaps are that the original blood, lymph, and nerve supply is maintained through the pedicles, they are more apt to take, and they fill the defect with harder tissue.

The disadvantages of pedicled flaps are that the quantity of tissue is limited, they must be taken from a nearby area, they cannot be turned and adapted readily to fit the defect, and they become free grafts with all of the disadvantages of the latter when their pedicles are severed.

To increase the usefulness of the pedicled flap the author recommends the semi-detached flap. By proper planning of the flap the blood supply is left intact. The skin is completely circumscribed, but the remainder of the pedicle, consisting of the blood vessels, nerves, lymph vessels, and subcutaneous tissue, is left. The blood vessels are more yielding than the skin and may be turned through greater angles without causing buckling or puckering. The semi-detached flap never becomes a free graft, is never entirely surrounded by scar, does not easily become blue and oedematous, maintains its original circulation, and is especially suitable for the correction of defects of the nose and face. More blood runs through the pedicle than through the line of union of the graft in the new bed, however narrow the pedicle or long the line of union. The blood supply should not be damaged by mattress or tension sutures.

The author describes the technique of the Italian plastic. Hard and inflamed skin edges are cut away.

Sutures should be placed in sound skin. A small stitch abscess will leave an obstinate, torpid ulcer when the pedicle is severed. An Italian plastic is injured by infection more than by any other factor. Even mild infection leaves a boggy, thick, ugly scar. Infection should be limited by immediately covering the defect made by the plastic with a Thiersch graft. Slight tension anemia in the pedicle will make a greater and fan-shaped anemic zone in the flap. A mattress suture through the pedicle will cause a large slough. Tension sutures passed through the skin at the base of each side of the flap may be pulled as much as desired without endangering the circulation of the flap. A long free bridge dangling between the base and the new bed is liable to infection. The longer the flap remains attached, the greater the scar, shrinkage, and infection; the sooner it is cut off, the greater the risk of necrosis. The viability of the flap may be determined by applying a thin rubber band around its pedicle. If the blueness of the flap caused by the band disappears in fifteen to twenty minutes, the pedicle may be divided. As a rule the pedicle may be cut at the end of two or three weeks. New circulation through the scar may be stimulated by applying and releasing a band every few hours. When the circulation is poor, the flap may be severed gradually. A bridge flap is better nourished than a single pedicled flap. Too much subcutaneous tissue makes a flap boggy.

The author reports a case in which Stenson's duct was transplanted to the back of the mouth near the pharynx to relieve salivary drooling.

WALTER C. BURKE, M.D.

Cuff, C. H.: The Application of Fascia Lata in Plastic Surgery. *Brit. M. J.*, 1922, I, 599.

The author reports seven cases in which fascia lata grafts were used. The transplant was kept under slight tension.

CASE 1. A faecal fistula in the left iliac region. A fascia lata graft measuring $2\frac{1}{2}$ by 4 in. was used to repair the defect in the abdominal oblique muscles. The patient was doing well twelve months later.

CASE 2. A gunshot wound of the left forearm with partial wrist-drop and inability to extend the terminal phalanges of the thumb and fingers. After excision of the scar and freeing of the extensor muscles and tendons from the mass of fibrous tissue, the upper end of a fascia lata transplant measuring 4 by $1\frac{1}{2}$ in. was sutured to the healthy bellies of the extensor communis digitorum and longus pollicis.

With the hand and fingers in dorsiflexion, one part of the lower end of the graft, which had been split, was sutured to the common tendons and the other half to the longus pollicis tendon. The hand and forearm were then put up in a "cock-up" splint. Passive movement was begun after three weeks. At the end of two months, a fair degree of movement in the fingers was obtained.

CASE 3. A gunshot wound of the middle third of the left leg with a painful adherent scar over the tibia. After excision of the scar tissue, a fascia lata graft measuring 2 by 1 in. was sutured to the periosteum with its fatty side up. The new scar remained elevated and painless.

CASE 4. A gunshot wound of the left mandible with a 1-in. loss of bone midway between the symphysis and the angle of the jaw. After the excision of scar tissue and sclerosed bone tips and the fixation in the defect of a tibial bone graft $2\frac{1}{2}$ in. long by means of kangaroo tendon, a fascia lata strip measuring 4 by $1\frac{1}{2}$ in. was wrapped around the graft and sutured to the periosteum of the fragments. The graft healed.

CASE 5. A hernia of the right lung through the third interspace in the mammary line due to an old injury to the chest wall caused by a cart shaft. After the invagination of the hernial sac through the defect in the intercostal space, a lipoma from the right deltoid region was inserted into the defect and covered with a fascia lata transplant measuring 4 by $2\frac{1}{2}$ in., which was sutured to the periosteum of the ribs bordering the third interspace. When the patient last reported, five months later, he was well.

CASE 6. Drop-foot due to a nerve injury caused by a gunshot wound of the thigh. Nerve and tendon transplantation had failed. After subcutaneous lengthening of the tendo achillis, the upper end of a fascia lata graft measuring 12 by 2 in. was sutured to the crest of the tibia and fibula and to the split aponeurosis. The lower bifurcated portion of the graft was pulled down by tunnelling the subcutaneous tissues with forceps. With the foot in full dorsiflexion, one part of the graft was sutured to the periosteum of the fifth metatarsal bone and the other half to the periosteum of the scaphoid and plantar fascia. Six months later the patient walked well.

CASE 7. Partial rupture of the short head of the biceps with painful and weak movements of flexion and supination of the left forearm. After release of the adhesions and tightening of the slack in the biceps tendon, a strip of fascia lata measuring 4 by $2\frac{1}{2}$ in. was sutured about the site of rupture. A small graft was placed over the scarred area on the brachialis anticus. The arm is now free from pain and is gaining power.

WALTER C. BURKET, M.D.

Van Hook, W.: Pedicled Flaps Aided by Free Fat Transplantation. *Med. Rec.*, 1922, 3, 493.

The author reports a case in which a pedicled flap of skin from the scapular region and fat from the

thigh were transplanted to repair an extensive defect in the right sternomastoid and neighboring muscles with loss of skin and considerable subcutaneous fascia and fat due to inflammation of the lymphatic glands six years previously. The technique of transplantation was as follows:

At the first operation a large flap of skin and a thin layer of subcutaneous connective tissue with its pedicle upon the shoulder was raised from the scapular region and sutured back into its original bed except on one side. Then, while a sufficient quantity of thick fat was excised from the thigh, an assistant exerted gentle pressure on the transplant with the flat of one hand to prevent oozing. The layer of fat was laid at once carefully under the pedunculated skin flap and the flap was sutured on the side remaining open. The thigh wound was then closed. Four weeks later, after the wound had healed and light massage had been given, the neck wound was re-opened and prepared for the transplant. The skin flap and layer of thick fat, which had become attached, was lifted up and rotated into position in the neck. Capillary circulation in the flap was indicated by finger pressure and the almost complete absence of oedema. The transplant healed in by first intention and the result was satisfactory.

In pedicled flaps the blood supply is maintained until the graft has taken. The pedicles are so formed that the blood vessels running into the transplant remain uncut until after the pedicle has fully served its purpose. In the author's opinion the raising and immediate resuturing of a skin flap back into its original location causes the pedicle vessels to dilate and thus assures adequate vascularization for the transplant through the pedicle. The addition of fat gives mass to the graft, fills the defect, prevents adhesions, and facilitates the movement of one set of structures over another.

WALTER C. BURKET, M.D.

ANÆSTHESIA

Labat, G. L.: Posterior Resection of the Rectum and Rectosigmoid (Kraske or Modified) under Regional Anæsthesia. *Bull. Johns Hopkins Hosp.*, 1922, XXXIII, 134.

Regional anæsthesia is the anæsthesia of choice for posterior resection of the carcinomatous rectum and rectosigmoid as it does not lower the vitality as much as ether.

In a two-stage operation two procedures are available for left rectus colostomy, the abdominal block and the paravertebral block. In each, an injection of $1/6$ gr. of morphine and $1/300$ gr. of scopolamine is given one hour before the operation. Abdominal block, which is the simpler procedure, is performed by injecting the subcutaneous and muscular layers from the xiphisternum along the costal arch to the tip of the eleventh rib and thence to the iliac crest. The anæsthetic used is a 0.5 per cent solution of neocaine or procaine containing 15 min-

line of 1:1,000 adrenalin solution per 100 c.cm. The amount varies from 100 to 200 c.cm. The paravertebral block, which gives a wider field of anesthesia, is produced by injecting 5 to 6 c.cm. of a 1 per cent procaine or novocaine solution into each nerve from the eighth left dorsal to the third lumbar.

For the Kraske resection 1/6 gr. of morphine and 1/100 gr. of scopolamine are given one hour before the operation, and a similar dose immediately on completion of the anesthesia. The best results are obtained by combining the caudal, trans-sacral, and paravertebral block of the last three lumbar nerves, in the order named. The solution used is 1 per cent procaine containing 15 minims of adrenalin solution, and the maximum amount injected is 150 c.cm. Caudal block is obtained by injecting 30 c.cm. into the sacral canal at about the juncture of

the coccyx and sacrum. Trans-sacral block is produced by injecting the sacral nerves through the sacral foramina, beginning with 6 c.cm. at the first foramen, and injecting 1 c.cm. less at each subsequent foramen. Paravertebral block is obtained by bilaterally injecting each of the last three lumbar nerves with 8 to 10 c.cm. of the anesthetic. If necessary, first-stage ether anesthesia may be used during deep manipulations. Toxic symptoms are exceptional when this technique is employed.

The author's thirty-three cases at the Mayo Clinic included patients with chronic cardiac and renal disease, diabetes, and pulmonary tuberculosis. He states that the method described is the safest now known, and that the patience and care required for its performance are amply rewarded by increased operability and safety. G. R. McAUITY, M.D.

SURGERY OF THE HEAD AND NECK

HEAD

Zorraquin, G.: Universal Craniotomy (Craniotomie universelle). *J. de chir.*, 1922, XIX, 348.

The author believes that intracranial hypertension can be relieved successfully only by a decompression which nearly approaches the large anterior fontanelle in position and dimensions. He calls attention to the fact that in skull specimens in museums classic pathological fontanelles have been present in this location in each instance. Such a large craniotomy flap would have an anterior pedicle vascularized by the frontal, supra-orbital, and temporo-frontal arteries, and would permit the exposure of a large surface of the cerebrum. The emissary veins, however, might be the source of considerable hemorrhage when the bone flap is raised from the dura. The great danger lies, of course, in the injury which might be done the superior longitudinal sinus. LOYAL E. DAVIS, M.D.

Jackson, H.: The Management of Acute Cranial Injuries by the Early, Exact Determination of Intracranial Pressure, and Its Relief by Lumbar Drainage. *Surg., Gynec. & Obst.*, 1922, XXXIV, 404.

The all-important finding in acute cranial injuries is increased intracranial tension due to edema and hemorrhage of the brain causing interference with the paths of absorption of the cerebrospinal fluid. If this is not relieved early, the increased pressure leads to chronic morbid changes in the cortex of the brain or, in extreme cases, to death. The principal effect of edema of the brain and hemorrhage is interference with the absorption of the cerebrospinal fluid by the usual paths. This sets up a vicious circle, further pressure on the brain being caused by accumulating fluid in the basal cisterns below the tentorium cerebelli and in the lateral ventricles which forces the brain upward against the dura and produces cortical anemia.

The cortical anemia, if unrelieved, quickly leads to gliosis causing lasting changes in the patient's character, disposition, and mentality if he recovers from the brain injury.

The symptoms usually depended upon as indications to surgical interference—such as slow pulse, high blood pressure, and stertorous breathing—are late symptoms and are due to medullary pressure. Surgery is of little avail if delayed until the medulla is involved.

The early diagnosis of increased intracranial tension can be made easily and directly by estimating the pressure of the cerebrospinal fluid by means of the mercury manometer connected with the hollow needle inserted as for lumbar puncture. This increased pressure antedates the appearance of the secondary symptoms of medullary pressure by many hours.

The relief of intracranial pressure can be obtained early and safely by repeated lumbar drainage. Such relief prevents medullary compression and the symptoms usually looked upon as indications for operation.

Subtemporal decompression (supratentorial) does not adequately relieve pressure on the medulla (subtentorial). When, following lumbar drainage, the hemorrhage and edema of the brain have subsided, the normal circulation of the cerebrospinal fluid is re-established. H. A. McKnight, M.D.

Rindfleisch, W.: The Significance of Brain Puncture and Lumbar Puncture in the Diagnosis and Prognosis of Brain Abscess (Ueber die Bedeutung der Hirnpunktion und der Lumbalpunktion fuer die Diagnose und Prognose des Hirnabscesses). *Deutsche med. Wochenschr.*, 1922, XLVII, 279.

Brain puncture has been found a useful diagnostic measure in brain abscesses. It gives accurate information regarding the location of the abscess and therefore makes it possible to restrict the trephine opening to the minimum. The autopsy in a case of

pyemia in which one or two days previous to death two brain abscesses were punctured but not opened showed that the danger from infection of the meninges is not great.

Lumbar puncture in cerebral abscess not complicated by meningitis shows an increase of the pressure up to a severe grade, a moderate increase of the albumin and globulin content, considerable pleocytosis usually of a lymphocytic, but occasionally of a leucocytic character, and absence of spontaneous coagulation and bacteria. The character of the cells in a spinal fluid punctate is dependent more upon the duration than the nature of the disease process. A lymphocytic spinal fluid does not speak against brain abscess and is not characteristic of tuberculous or lues. The lymphocytosis in the spinal fluid found in simple conditions following injury is differentiated from that of brain abscess by its smaller number of cells (twenty to forty per cubic millimeter). Even the severe polynuclear leucocytosis in the spinal fluid is not evidence of a purulent meningitis and should not be considered a contra-indication to the opening of an otherwise operable brain abscess.

WREDE [7].

Lynn-Thomas, J.: A Case of Epilepsy of Twenty-Two Years' Standing Due to a Calcified Endothelioma or Perithelioma in the Left Lateral Ventricle: Removal and Recovery. *Brit. J. Surg.*, 1922, ix, 490.

In the case reported the convulsions began as a localized twitching in the fingers of the right hand which then spread up the arm and involved the right side of the body. This occurred every fourteen days and lasted from one-half hour to three hours. On six occasions the patient lost consciousness.

X-ray examination revealed a distinct dark mass about $\frac{1}{2}$ in. above the pinna of the left ear.

Exposure of the brain revealed no abnormality of the cortex, but on palpation of the postero-inferior angle a hard mass was found beneath the cortex. An incision was made over this mass and the iodized index finger inserted; a large calculus was discovered and removed. The brain was then closed and a drainage tube inserted.

Convalescence was marked by motor aphasia and paralysis of the right side of the body. This gradually subsided. The patient is now free from convulsions but has athetotic movements of the right hand.

H. A. MCKNIGHT, M.D.

Volland: The Results in Fifty Trephinations of the Skull in Epilepsy (Untersuchungsergebnisse von 50 Schädeloperationen bei Epilepsie). *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1922, lxxv, 505.

Volland reviews the histories of fifty cases of epilepsy treated at the Hospital for Epileptics in Bethel. In 26 cases a traumatic origin of the trouble was probable. Most of the cases of non-traumatic epilepsy were preceded by general infections with encephalitic or meningo-encephalitic processes

(twenty-one of twenty-four cases). When paresis resulted it usually affected the left side of the brain.

Volland raises the question whether surgical intervention would not be a wise prophylactic measure against epilepsy in the cerebral complications of infectious diseases of childhood accompanied by loss of consciousness, fever, and convulsions persisting for hours or days. However this may be, authorities are at variance as to the indication for operation in the acute stage of encephalitis, but are agreed that when epileptic phenomena are noted following inflammatory diseases of the brain operation should be performed at the earliest possible moment. Volland's material is evidence in favor of this point. In cases of non-traumatic epilepsy (ten of twenty-two cases) a hereditary taint is a factor prognostically unfavorable for surgical intervention, but is not a contra-indication. A predisposition to epilepsy is necessary to the development of either non-traumatic or traumatic epilepsy. This predisposition may disappear after the period of growth and development. The author cites two examples.

Among the injuries causing traumatic epilepsy, birth injuries hold an important place (five of twenty-six cases). A hereditary taint is present in half the cases. The epilepsy may appear at once or not until several years after the injury. The earlier operation is performed the better the prognosis. Of the twenty-six patients with traumatic epilepsy whose cases are reviewed by the author, one was entirely cured, six were much benefited, two were favorably influenced, six remained unchanged, and the rest became worse as regards psychic deterioration and the frequency of attacks.

The dural tension or increase of pressure found in epileptics at operation is regarded as a result rather than a cause of the epileptic condition. The swelling of the brain is referred to an increase of water due to colloidal processes. The changes due to chronic inflammation in the meshes of the subarachnoid space are explained as secondary changes.

Volland gives the following contra-indications to operation: localized epileptic symptoms, if due to poisoning (lead, alcohol, uræmia) or to hysteria, forms of epilepsy with a syphilitic basis, epilepsy due to disturbances in fetal development or encephalitis, arteriosclerotic forms, the cases of persons over 40 years of age, and those which can be influenced by drugs. When the mind is already affected, not much can be expected from operation, but operation should be performed in spite of weak-mindedness if the psychic changes are due to a circumscribed process such as a cyst. If the epileptic attacks are of the character of general convulsions, operation is indicated if the etiology includes trauma, if there are headaches persisting for days, or if the convulsive attacks have had a localized character temporarily. If the convulsions are of the Jacksonian type, operation is indicated if the etiology is traumatic, if there is tumor formation in the motor region, if the attacks have followed infantile paraly-

six, and if there are no pathologic changes, epileptogenic areas, or sensory aura.

In conclusion Vallaurd brings out the importance of thorough after-care following the operation, by means of hygiene, diet, drugs, and occupational therapy. This care can be given best in an institution.

Werner (Z).

Biedermann, H.: The Covering of Large Palatal Defects Due to Gunshot Injuries by Means of Pedicled Skin Flaps Taken From the Forehead and Having an Epithelial Covering on Both Sides (*Zur Deckung grosser Gaumendefekte nach Schussverletzung durch gestielte Stirnhautlappen mit doppelseitiger Epithelbedeckung*). *Beitr. z. klin. Chir.*, 1944, 233, 444.

The author reports two operations on palatal defects in wounded soldiers. Flaps cut in the shape of the handle of a pistol were taken from the left half of the forehead according to Lexer's method, and the defect was covered at once with strips of epidermis by Thiersch's method. The very long and narrow flaps were nourished by the temporal artery.

After freshening of the gap in the jaw, the cheek was split open by an oblique incision 4 cm. long made the breadth of the thumb above the left angle of the mouth. The flap was then drawn in through the incision and fastened to the margins of the defect. In one case its end was doubled by turning it up so that a skin surface was presented to the nose and buccal cavity. In the other case a flap of mucous membrane from the left side of the roof of the mouth was swung around and used as a continuation of the epithelium toward the nose.

The pedicles were divided after seventeen and twenty-one days respectively, and the unused portions of the flaps were put back on the areas from which they were taken. Complete closure of the defects was obtained by subsequent slight operations in the mouth. The results were excellent.

Brunner (Z).

Konjetzny, G. E.: The Surgical Treatment of Habitual Luxation of the Mandible; A New Operative Technique (*Die operative Behandlung der habituellen Unterkieferluxation; eine neue Operationstechnik*). *Arch. f. klin. Chir.*, 1941, 183.

The purely symptomatic treatment of habitual luxation of the mandible by means of elastic bandages (Schellhorn) is deforming and is disliked by the patient; the use of the inhibitory prosthesis of Fritzsche and the gliding splint of Schroeder is associated with difficulties and may produce a decubitus and a condition more disturbing than the luxation.

The demonstration of abnormal stretching of the capsule as the cause of the dislocation led to treatment by chemical shrinkage of the capsule and its operative reduction. The former, consisting of injections of tincture of iodine or alcohol, has been

frequently successful, but ultimate aggravation was observed in one case. The end-results of the second method, excision of a part of the capsule (Ritter), are unknown. The author believes that this method cannot be satisfactory because of: (1) the slight height of the articular tubercle and the varying abruptness of the rise toward the intra-articular plate; (2) the pathologic conditions in the joint; and (3) the injury of the lateral collateral or temporomandibular ligament which limits the forward motion of the capitellum.

The author devised a technique which, after exposure of the joint capsule and the use of Kocher's hook incision, spares the lateral ligamentous apparatus and inhibits the forward motion of the joint capitellum by means of the meniscus. The important feature is the formation of a flap with a large pedicle which includes in its upper part the periosteum of the malar bone and in its lower part the lateral joint capsule with the lateral collateral ligament. The meniscus is separated laterally and medially close to the capsule, but is left attached at its most anterior part. The anterior site of reflection of the joint capsule is divided at the capitellum and pushed away with the external pterygoid muscle. The meniscus can then be easily reflected and sutured in front of the capitellum. The flap formed originally is then returned to its position and fixed in place by a suture which includes the lateral border of the meniscus. The skin is sutured and a retention dressing applied for ten to fourteen days, during which time nourishment is given through a tube. After the eighth day soft food is given. The results in two cases were very satisfactory.

The pathogenesis of habitual luxation of the mandible is frequently a habitual recurrence of a traumatic luxation, but the condition may also occur gradually in a pathologically altered joint, as in one of the author's cases of inflammation with pain in both mandibular joints, painful cracking, and luxation on yawning. The latter was a case of subacute arthritis with partial fibrous adhesion of the meniscus to the capitellum which drew the latter forward when the mouth was opened. The disease picture in such cases is identical with that of habitual subluxation of the mandible, luxation of the meniscus, and mandibular disitis, which the author includes among the indications for his operation. The procedure advocated is the best method of avoiding recurrence in open reposition of neglected mandibular luxation.

Kom (Z).

Dufourmentel, L.: Reconstruction of the Upper Lip in Women (*La reconstruction de la lèvre supérieure chez la femme*). *Presse méd. Par.*, 1942, 333, 334.

In the reconstruction of the upper lip in man the defect may be covered with hairy tissue obtained either from nearby regions or from the scalp. In woman, however, the problem is very difficult.

A recent case of the author's was that of a young woman whose upper lip was almost totally destroyed

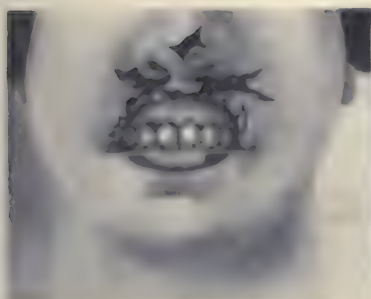


Fig. 1. The wound at the time of the first operation, one hour after the accident.



Fig. 2. Outline of flaps. Dotted line, cutaneous flap, solid line, intra-buccal mucous flap.



Fig. 3. Result obtained by application of cutaneous and mucous flaps taken from the region of the wound.

(Reconstruction of the Upper Lip in Women—Dufourment.)

and whose nose was torn by the teeth of a dog. The treatment of this case required four months, seven operations, and daily dressings.

The first operation consisted in cutting skin flaps in the vicinity of the injury, constructing a mucous plane by the removal of a strip from each cheek, and suturing the nasal wound. In the second operation a Thiersch dermo-epidermic graft removed from the thigh was applied. The results were so unsatisfactory, however, that in many areas it was necessary to supplement this graft by thick grafts of skin and fat. In the third operation an Italian pedicled graft was cut from the thenar eminence and sutured into the breach. The subsequent operations were chiefly corrective measures.

In this case the use of all kinds of grafts, French, Indian, Italian, and free Thiersch grafts, was necessary. The mucous border, particularly, was reconstructed by the French method of pedicled grafts cut from the vicinity. Colored spots were made white by means of sulphate of zinc.

The intervals between the operations need not be long; the excellence of the results obtained in this case proves the harmlessness of rapidly consecutive treatments. The case shows also that the absence of the orbicular muscle in no way hinders movement. Contraction of the zygomatic muscles is sufficient to ensure normal movement of the lips during laughing.

W. A. BRENNAN.

NECK

Lahey, F. H.: A Review of a Year's Thyroid Work. *Boston M. & S. J.*, 1922, CLXXXVI, 563.

The slight symmetrical enlargement of the thyroid gland occurring with the establishment of menstruation, the adolescent goiter, needs no treatment. In Lahey's opinion tachycardia associated with these pubescent enlargements in the absence of other signs of thyroidism is usually not of thyrotoxic origin as in repeated experiments he made in such cases the metabolic rate was within the normal limits or only slightly increased.

The author gives what he considers to be the indications for operation in colloid goiters, cysts, and adenomata.

With the exception of a small group, all of the author's patients with marked hyperthyroidism have been subjected to surgery. The mortality rate has been very low: 2.36 per cent in the entire series, 1.17 per cent in the year's series. Lahey does not believe that medical treatment offers any hope of permanent cure. With regard to X-ray treatment he states that we have not yet sufficient knowledge to warrant judgment.

A series of metabolism experiments, pre-operative and postoperative, have been carried out by the author. He draws the conclusion that it is a grave error to consider thyroid disease in terms of increased metabolism, and that the basal metabolism is of value only when it is carefully correlated with the history and clinical signs.

Hamilton classifies the hearts in hyperthyroidism into two groups. In the first group are included the undamaged hearts in cases of all degrees of toxicity which never fail and which are apparently sound after the patient is cured of the hyperthyroidism. The small second group is made up of the damaged hearts — usually showing auricular fibrillation — which respond to the administration of digitalis.

R. M. WATKINS, M.D.

Hellwig, A.: The Lighter Forms of Hyperthyroidism; A Comparative Clinical and Pathologico-Anatomical Study (Die Hyperthyreosen leichten Grades; eine vergleichend klinische und pathologisch-anatomische Studie). *Beitr. z. klin. Chir.*, 1922, CXXV, 75.

By pathologico-anatomical research the author has endeavored to answer the still-disputed question regarding the relation of the forms of hyperthyroidism with few symptoms to classical exophthalmic goiter. The strongest support of the thyrogenic origin of classical exophthalmic goiter is its pathologico-anatomical constancy, i.e., the specific character of the struma Basedowiana. Hellwig

attempted to ascertain whether a characteristic change occurs in the thyroid gland in the conditions known as "formes frustes," "thyrotoxicoses," "hyperthyroidism," "goitrous heart," and "pseudo-exophthalmic goiter," and to determine the laws governing the relation between the histological structure and the severity of the clinical picture. From about sixty comparative clinical and pathologico-anatomical examinations he selected as a basis for his article ten characteristic cases which presented clinically distinct signs of hyperthyroidism and in which the thyroid gland showed histologically a relatively simple picture. In light forms of hyperthyroidism it is of great importance to obtain an exact history.

In most of these ten cases a goiter had been present for a number of years before the thyrotoxic disturbances were noticed. In all, the disturbances developed simultaneously with marked growth of the thyroid. In no case could treatment with iodine be regarded as the cause of the hyperthyroidism. Two patients traced their condition to articular rheumatism, but the majority attributed it to mental disturbance or physical overexertion. Nine patients complained of attacks of palpitation of the heart. In eight cases there was marked acceleration of the pulse, and in four, an enlargement of the heart to the left which was evident on percussion. With regard to ocular signs, the author states that the lustre of the eye and the widening of the slit between the lids were absent in only three cases each, while von Graefe's sign was present in one, Stellwag's in two, and Moebius's in three. Protrusion of the eyeball was distinct in five cases and dilation of the pupil in two. In all ten cases a goiter was present. Tremor was noted in all the lighter cases. Falling of the hair was an early sign in the majority. The temperature was normal in eight cases. All of the patients except two men of unusually large build were of average size. Eight were females. In eight cases Koch's variation of the blood picture could be determined. All the patients showed great restlessness, both mental and physical. Kocher regarded this as an early sign of exophthalmic goiter.

Histologically the preparations, which for the most part were obtained by partial resection of the goiter, showed in six cases the picture of diffuse

colloid struma. The good blood supply, the delicate connective tissue framework, the thin colloid, the active proliferation of the epithelium indicate that this form of goiter is the expression of a true hyperplasia with hypersecretion of a dilute colloid. To describe it the author proposes the term "large-follicle hyperplasia."

Clinically the cases were light and non-progressive. In one instance the quickly growing struma with small nodules corresponded to the severe, progressive cases of hyperthyroidism. The same may be said of two cases in which Basedow's infection occurred in an adenoma. In the more severe of the latter cases, typical Basedow tissue could be recognized also in the parenchyma outside of the nodule.

Accordingly there is a good parallelism between the severity of the clinical and the histological pictures. The same histologic changes were present which in pronounced degree form the basis of classical exophthalmic goiter, viz., liquefaction of colloid and an increase and enlargement of the epithelial cells. In the mild forms of hyperthyroidism, the author regards the diffuse colloid struma with large follicles as typical of the pathologico-anatomical changes in the thyroid gland, just as the Basedow struma is typical of the classical exophthalmic goiter. The rapidly growing adenoma with large follicles may also cause signs of hyperthyroidism. On the basis of the diffuse colloid struma the true picture of exophthalmic goiter may develop by acceleration of the proliferative processes and further liquefaction of the colloid. On the basis of his histological findings the author concludes that a sharp distinction between the hyperthyroidism of slight degree and classical exophthalmic goiter is unjustified.

Of greatest importance in the comparatively symptom-free goiters, as in the more severe exophthalmic goiters, is the increased activity of the thyroid gland. Therefore Hellwig regards the term "hyperthyroidism" as most applicable to these conditions. He differentiates the light and severe forms of hyperthyroidism. Among the light are to be placed the monosymptomatic forms such, for example, as Kraus's goitrous heart, and among the more severe, the progressive cases with and without Basedow's triad. KONJENTNY (Z).

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Hedblom, C. A.: *The Diagnosis and Treatment of Tuberculous Empyema. Surg., Gynec. & Obst.*, 1922, XLIV 445

In a large proportion of cases, primary or idiopathic pleurisy with effusion is probably tuberculous in nature. A history of pleurisy with effusion is common in cases of tuberculous empyema. In many instances the effusion is serous at the onset.

Tuberculous pleurisy may be primary or secondary to a pulmonary, peritoneal, or other tuberculous lesion.

The onset of a tuberculous effusion may be insidious or sudden and associated with an acute and severe constitutional reaction. A mixed pleural infection due to the perforation of a tuberculous cavitation often runs an acute and rapidly fatal course. The diagnosis of tuberculous empyema is made by the demonstration of the bacilli in the

exudate, by animal inoculation, or by examination of the sectioned pleura. A sterile effusion is probably tuberculous. An infected effusion may be tuberculous. Empyema may be tuberculous in spite of persistently negative findings over a long period of time. In a closed pleural cavity a sterile effusion, whether serous or purulent, should not be treated by open drainage except in the presence of an impending perforation of the chest wall. Repeated aspiration of only part of the fluid is indicated in cases of serous effusion producing definite dyspnoea on exertion or symptoms of circulatory embarrassment.

The replacing of aspirated fluid by nitrogen or filtered air may be indicated in cases in which there are symptoms of active phthisis referable to the same side as the effusion. A sterile purulent effusion should be treated as though it were serous if the lung expands when fluid is withdrawn. If the lung is fixed in a collapsed condition or if the effusion persistently recurs, an extrapleural plastic operation is indicated.

Effusion in a closed cavity showing a mixed infection should be treated by the closed method with antiseptic irrigation, or by open drainage; open drainage is indicated especially in cases of severe infection associated with extensive pulmonary tuberculosis making irrigation hazardous. Tuberculous empyema with a large bronchial fistula should be drained by the open method. A large tuberculous empyema with mixed infection from a previous drainage operation or from spontaneous perforation of the chest wall requires a plastic operation, preferably following treatment with Dakin's solution. In cases of associated large bronchial fistula a plastic operation involving closure of a bronchus offers the only prospect of cure. Irrigation with Dakin's solution may be contra-indicated in the presence of an extensively diseased lung because of its corroding action on superficial lesions which might result in hæmorrhage or the formation of a bronchial fistula.

When the empyema is of long standing a plastic operation is usually required eventually in cases of closed cavities and all large, open, secondarily infected cavities. For the collapse of closed sterile cavities an extrapleural rib resection is indicated. The Boivin-Wilms operation is especially suitable for the collapse of large cavities without excessive thickening of the parietal pleura or rib deformity.

For the obliteration of relatively small cavities a skin or skin and muscle plastic is indicated. Cases of long standing with greatly thickened pleura require extensive resection of the entire chest wall after the method of Schede. Operation in several stages is indicated especially in the treatment of tuberculous empyema, and if practicable, should be preceded by antiseptic irrigation. Such treatment should extend the indications for operation and lower the postoperative mortality.

RALPH B. BETTMAN, M.D.

Szenes, A.: Fissures of the Sternum and Their Origin (Ueber die Fissura sterni und ihre Entstehung). *Arch. f. klin. Chir.*, 1922, cxc, 116.

The sternum in an 8-year-old boy showed a fissure 3 cm. wide at the top which became narrower as it approached the xiphoid appendix. On both sides the edges were straight and clean-cut, and the ends of the ribs could not be distinguished in the hard margin. The fissure was covered by a thin scar, 10 cm. long and 3 cm. wide, through which the large vessels could be seen pulsating. Lateral compression of the thorax narrowed the fissure a little. From the upper angle of the scar a fold covered with normal skin extended from the breast to the chin. Compression of this fold caused a disagreeable sensation; within it the trachea could be felt indistinctly. Nine centimeters below the upper border of the clavicles, the ventral ends of which could be distinctly palpated, a bony bridge, 2 cm. wide, crossed the fissure and just below passed over into the very acute sternocostal angle which extended to the end of the sixth rib. On the chin was a sharp-pointed bony process 3 cm. broad which projected about $2\frac{1}{2}$ cm. The head could not be bent back, and was held inclined slightly forward. The course of the trachea was normal.

An oblique exposure of the trachea in the X-ray examination disclosed several foci containing lime in the prolongations of the first five ribs, about one finger-breadth from their bony ends. The largest of these was about the size of a finger nail and was situated in the prolongation of the first rib. Apparently these were foci of calcification in fetal strips of cartilage representing the sternum which had resisted the breaking-down process.

To increase the movement of the head a transverse incision was made under the larynx, the connective-tissue fibers and the muscular fasciculus were severed sufficiently to expose the thyroid gland and longitudinal anastomosis was effected. This operation was performed under ether anaesthesia. Primary healing resulted.

In the author's opinion the cause of the malformation described was pressure on the chin, neck, and breast in early embryonic life. The latest period during embryonic life in which these malforming causes could have been effective to prevent closure of the fetal strips of cartilage representing the sternum is that in which the length of the foetus is about 15 to 19 mm. from the crown of the head to the tip of the coccyx. CREITE (Z).

Greig, D. M.: On Puberal Mammary Hypertrophy. *Edinburgh M. J.*, 1922, n. s. xxviii, 153.

The case reported was that of a girl, aged $14\frac{1}{2}$ years, with enormous enlargement of the breasts which began about two months after she first menstruated at puberty. Menstruation then did not occur again, but the breasts continued to increase rapidly in size. They were tender but not painful unless touched. When the patient was in the recumbent position they overflowed the thorax, and

when she assumed the sitting position they were inadequately supported by the abdominal walls. They were of a dusky color from congestion and venous engorgement; the superficial veins were very prominent. The enlargement was irregular as from glandular hypertrophy. A month after the patient was seen by the author, infection set in and a week later death occurred.

Autopsy revealed nothing abnormal except in the breasts. The left breast was 7 in. deep and 11 in. across. The pathologic report on the right breast stated that grossly it presented general hypertrophy with glandular hyperplasia in nodular form, and on microscopic examination showed chiefly fibrous tissue with gland spaces filled with altered epithelium such as is found in cases of great glandular activity.

In discussing the case the author reviews the literature. He excludes some of the reported cases because the description applies more exactly to chronic mastitis, acute carcinoma, or a gradual hypertrophy due to repeated pregnancies.

The cause of hypertrophy of the breast is unknown but may lie in the breasts themselves, as shown by improvement in some cases following removal of the larger breast. Spontaneous cures are also reported. The symptoms are rapid hypertrophy of the glandular elements without lactation and a decided increase in the vascularity. The treatment is immediate amputation.

R. E. CHRISTIE, M.D.

Schneller, J.: Diseases of the Mammary Gland in the Male (*Erkrankungen der männlichen Brustdrüse*). *Arch. f. klin. Chir.*, 1922, cxiv, 169.

The author reviews the embryology and anatomy of the mammary gland. From Schwalbe's milk streak, which is present in an embryo 4 mm. long, the milk ridge is developed. At the point where the mammary gland will be formed a circumscribed epithelial thickening occurs while the remaining parts of the ridge disappear. The formation of a nipple is discernible in an embryo 4 cm. long, the epithelium penetrating into the depths in the form of a solid cone. In the fourth month the development has reached that of a massive organ. By the eighth month the cell-columns extending outward from the epithelial cones, which in the beginning were solid, show lumen formation. Through disintegration of the cells the epithelial cones are hollowed out and the lumina of the glands open into them. In the newborn no difference is seen in the male and female mammary glands. In the female at puberty there is an enlargement of the breasts but in the male only an increase in the size of the nipples and of the pigmentation around them.

Absence of the breasts is rare. Polythelia and polymastia are more frequent, especially in women. These malformations are probably inherited. There is no special tendency to tumor degeneration in polythelia. In gynecomastia true hypertrophy is to be differentiated from pseudohypertrophy due to an increase of fatty tissue. Cases of gynecomastia

may be divided into those in which the sexual organs are well formed and those in which the sexual organs are malformed. In most cases described as adolescent mastitis or chronic mastitis the condition is an inflammation rather than a hypertrophy. This often follows trauma and is generally not associated with deformity of the genitalia. Hypermastia with malformation of the genitalia is the result of disturbance in the internal secretions of the interstitial cells of the testicles. It is found in castrates and eunuchs. Gynecomastia is observed also in primary disease of the pituitary body.

Among inflammations phlebitis and mastitis—mastitis neonatorum is to be mentioned. Its cause is to be sought in the entrance of bacteria at the time of birth. In the chronic stage of inflammation diffuse fibroma of the breast may develop through the increase of connective tissue. Traumatic mastitis is often observed in artisans. Primary tuberculosis is rare; as a rule the infection has its origin in a carious rib. Syphilis is more frequent, especially its early manifestations. In the first stages of syphilis a diffuse syphilitic mastitis develops, and in the later stages a circumscribed gummatous mastitis. Actinomycosis is exceedingly rare.

The most frequent and most important pathologic condition of the breast is tumor formation. Typical tumors of connective tissue origin are the fibroma durum, the fibroma molle, the fibromyxoma, and the myxoma. Lipoma is rare. It is not certain whether chondroma has been observed or not. Most rare are the hæmangiomas—which are usually congenital—and the lymphangiomas. A myoma of the mammary gland was observed by Virchow.

Among atypical tumors of connective tissue origin is the sarcoma. This is very rare, and occurs more often on the right side than on the left. The round-cell sarcoma is very malignant and of rapid growth. Most frequent is the spindle-cell sarcoma. Rhabdomyosarcoma, adenosarcoma, cystosarcoma, fibromyxoma sarcomatodes, and angiosarcoma have each been observed in a single case. A melanosarcoma has been observed several times.

Of the typical epithelial tumors the least common is the adenoma. This is found more frequently in old than in young men and may attain the size of a child's head. More common is the fibro-adenoma. This also occurs more frequently in old than in young men. In some instances its occurrence was familial; in most it was malignant. Besides a congenital predisposition, trauma has been regarded as a cause. Cystadenoma and adenomyoma have been observed in single cases. Benign epithelial tumors of the mammary glands have been described also as fibropapilloma pendulum and epidermoidal atheroma.

Of atypical epithelial tumors carcinoma is by far the most frequent neoplasm involving the male mammary gland. About 2 per cent of all carcinomas of the breast occur in man. Statistics show that the incidence of mammary carcinoma is highest between the ages of 56 and 60 years.

The author reviews the various theories as to the causative factor in the genesis of tumors. With regard to the importance of heredity, opinions differ greatly; very extensive statistics must be studied before this point can be determined. Cohnheim's theory attributing the genesis of tumors to developmental disturbances, particularly the displacement of tissue cells, is evidently not correct, for in spite of the frequency with which numerous mammary glands appear outside as well as inside the milk ridge, cancer has not as yet been observed in such glands in the male. The chronic irritation from the pressure of suspenders has been suggested as a primary cause of mammary cancer in men but if this were the case the condition would be more frequent. Through their pressure braces may call the attention to a tumor already present. It is not known whether an isolated trauma may be the cause of a carcinoma, but the possibility is generally admitted.

The point of origin of the carcinoma is most frequently the gland and its duct, rarely the nipple. Of previous diseases, those chiefly to be considered are inflammations and benign epithelial tumors. As the male mammary glands are much smaller and contain less fat than those of the female, the development of cancer in them will be discovered much earlier. The localization of a new growth just under the skin means an early perforation and breaking down of the tumor.

Growth and metastasis of the tumor take the same course as in carcinoma of the female mammary gland. Carcinoma of the breast is more frequent on the right side than on the left as the right breast is more exposed to injury than the left since most men are right-handed. When both breasts are affected it is a matter of metastasis from the one side to the other as the lymph vessels of both sides are connected.

The minimum duration of the disease is given as six months, and the maximum duration as eighteen years. The author describes the various types of cancer of the breast. The rare cancer of the nipple is usually a canceroid. The peculiar affection of the breast described as "Paget's disease" is rarer in man than in woman. Its course is clinically that of a chronic eczema. The primary affection, however, is a cancer characterized by intra-epidermoid growth.

Parasites infecting the breast are the cysticercus and echinococcus. These have been found in rare cases in females but not as yet in the male. The frequent parasite of the nipple, the demodex folliculorum, has been regarded as a carrier of a toxin causing cancer. According to Orth, its importance in the origin of carcinoma is entirely unproved.

FISCHER (Z).

Lee, B. J.: A Further Report on Traumatic Fat Necrosis of the Female Breast and Its Differentiation from Carcinoma; Three Additional Cases. *Surg., Gynec. & Obst.*, 1922, xxxiv, 521.

Traumatic fat necrosis remains closely allied in its clinical phases to carcinoma but some variation

in its behavior may suggest a benign process. The gross pathologic picture is characteristic, but if the patient is to be spared an unnecessary radical amputation, the surgeon must possess a good pathologic training.

The author presents several photographs of gross and microscopic specimens, the histories, and the pathologic reports of three cases under his observation.

The incidence of traumatic fat necrosis of the breast as compared with primary breast carcinoma is as 5 is to 283 (1.8 per cent). Among benign breast tumors the ratio of fat necrosis to other benign lesions is 5:72 (nearly 7 per cent).

In all cases the condition developed when cancer was to be expected. The youngest patient was 36 years, the oldest 54. All of the patients were heavy women, none weighing under 152 lbs. The most corpulent weighed 211 lbs.

In every instance the breasts were large and full. In one instance they extended to the level of the umbilicus.

One of the chief diagnostic aids is a history of trauma. In three of the cases hypodermoclysis was the traumatic factor.

Pain in or about the breast is not a necessary feature, but extreme hardness of the tumor is a characteristic sign. Fixation of the overlying skin to the tumor mass was observed in nearly every case.

No axillary or supraclavicular nodes were present except in one case; therefore their absence may furnish a differential point between fat necrosis and carcinoma.

The time which elapsed between the receipt of the injury and the recognition of the tumor varied from three weeks to ten years.

In conclusion the author suggests the possibility that certain cases diagnosed in the gross as carcinoma may have been cases of traumatic fat necrosis.

C. H. DAVIS, M.D.

TRACHEA AND LUNGS

Rahnenfuehrer, C.: A Contribution to the Clinical Study of Circumscribed Suppurations of the Lungs: Abscess and Gangrene (Beitrag zur Klinik der umschriebenen Lungeneiterungen: Abscess und Gangraen). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1921, xxviii, 97.

The author reports thirty cases of suppuration of the lung which were observed in the course of two and a half years. Ten were cases of pulmonary abscess. Abscess can be differentiated from gangrene best by examination of the sputum: it is impossible to distinguish one from the other in the X-ray picture. Of the thirty cases of suppuration of the lung, nine were fulminating, twelve acute or subacute, and nine chronic. Eleven cases showed a single disease focus, and sixteen, multiple foci. The cause of the suppuration may reach the lung by way of the respiratory tract, the blood, or the lymph stream.

Pyogenic organisms entering by way of the bronchi may attack a sound lung or one already diseased; in some cases the bronchi through which they enter may be already diseased. In the cases reviewed the most frequent cause of suppuration of the lung was the aspiration of a foreign body (eight cases, in three of which there was mental disease). Bronchiectasis was regarded as the cause of the suppuration in four cases. Three cases of gangrene and one case of pulmonary abscess appeared as sequelae of croupous pneumonia. The seven cases in which suppuration of the lung followed influenza proved fatal. Suppuration of the lung appeared once following secondary infection of a cavity, once following the breaking down of part of a bronchial carcinoma, twice following contusion of the lung (which in one case had occurred a year previously), twice following thrombophlebitis of the femoral vein, and once by the lymph stream, the direct cause in this case being probably infection from caseated bronchial glands.

The symptoms of the condition are mentioned only briefly. The fever was intermittent, remittent, or continuous. The most constant physically demonstrable sign was the râles. The contrast between a small quantity of sputum and a distressing cough is a very characteristic sign of suppuration of the lung. No rule could be found to govern the leucocyte count.

Among the complications, in addition to empyema and pleural involvement in the form of dry or exudative pleurisy, hæmorrhage from the lung into the pus cavity is mentioned. This occurred in seven cases and in three was responsible for a fatal termination. Transmission of the infection to other parts of the lung by aspiration is another severe complication.

X-ray examination does not always give reliable information as to the nature of the disease, but reveals its exact site, demonstrates the number of foci, shows the progress of the condition, and indicates the time for surgical intervention. In nineteen cases roentgenologically examined a cavity was discovered in sixteen.

In the differential diagnosis consideration must be given to empyema (absence of elastic fibers), tumor of the lung (fat globules or elastic fibers), and bronchiectasis with suppurative bronchitis (X-ray picture).

Ten of the thirty cases reported were cured; the others took an unfavorable course.

As treatment the author recommends at first internal treatment, unless stormy symptoms make operation necessary. Records of the quantity of sputum and control of the case by the X-ray picture are essential. If there is no inclination to spontaneous healing (observed in seven cases), surgical treatment is indicated. If the suppuration of the lung is concealed by perforation of a peripheral pulmonary focus into the pleura and the resulting secondary empyema is discovered first, the empyema, which is usually ichorous, and the primary pulmonary focus may be treated by operative evacuation.

The article contains case histories and reproductions of X-ray plates.

ROSENBERG (Z).

PHARYNX AND ŒSOPHAGUS

Vinson, P. P.: A Pedunculated Lipoma of the Œsophagus. *J. Am. M. Ass.*, 1922, LXXVIII, 891.

The patient was a man 62 years of age. During an attack of coughing the tumor appeared in the mouth. It was easily swallowed but left the throat sore and swollen. Six years later, during an attack of vomiting, it was again ejected so that it protruded from the mouth but was again swallowed. A week later this occurred once more.

Upon examination with the Œsophagoscope without anesthesia a tumor mass was found on the right wall just below the introitus, attached by a pedicle 1 cm. in diameter. No attempt was made to remove it at this time. On induced vomiting the growth was found to protrude beyond the teeth a distance of 11.5 cm. At the tip it was 6.5 cm. in circumference, firm, and covered with normal mucous membrane. Removal through the mouth by means of a snare and cautery was considered but on account of its high attachment it was removed through an incision in the neck, the technique being very similar to that used in cases of Œsophageal diverticula. Previous to the operation the tumor was regurgitated. After its removal the Œsophagus was closed with two rows of catgut and the wound closed in layers.

Following the operation no food was given by mouth for eight days. Water in small amounts was then allowed. The convalescence was uninterrupted, the wound healing by primary intention.

The tumor was found to be 22.5 cm. long. In Vinson's opinion this is the first case of lipoma of the Œsophagus to be reported.

GEORGE E. SUTTON, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Cox, O. C.: A Method of Dealing with Intestinal Loops Densely Adherent to an Inguinal Hernia. *J. Am. M. Ass.*, 1922, LXXVIII, 1123.

The author reports a case of a large, irreducible inguinal hernia on the left side in which the omen-

tum and intestines were densely adherent to the hernial sac. Operation was performed under local anesthesia. The intestinal loops were separated and the sac wall was severed, patches of the latter being left on the intestines after the manner described by Cullen. The free edges of these patches, instead of being trimmed short, were left long and



Patches of hernial sac, consisting of peritoneum, firmly fixed to the bowel, the edges folded over with fine catgut to cover raw surfaces.

folded on themselves, and their edges were approximated with fine plain catgut. In this manner the raw surfaces on the intestines were covered with smooth, shiny peritoneum.

Coley, W. B., Leigh, S., Walker, J. B., Hopkins, C. W., and Hutchison, J. A.: *Traumatic and Industrial Hernia*. *Ann. Surg.*, 1922, lxxv, 467.

Numerous Workmen's Compensation Acts make traumatic or industrial hernia an important problem to industrial organizations.

In general, traumatic herniæ include: (1) a small group of herniæ due to direct violence; (2) occupational herniæ (called by the French "herniæ of effort") which appear during heavy lifting, slipping, falling, coughing, sneezing, or any other effort increasing the intra-abdominal pressure; (3) the "herniæ of weakness" due to abnormal or defective development of the abdominal wall at the various sites of hernia.

True traumatic hernia, which is rare, is due to direct violence to the tissues by some more or less sharp object forced through at least the muscle and fascia. The authors have never seen a true traumatic hernia, but cite a case in which the muscles about the inguinal canal were torn by the horns of a bull, the hernia developing shortly afterward, and refer also to Mock's five cases.

The second group, "occupational herniæ," furnish nearly all the medicolegal or compensation cases.

The third group, the "herniæ of weakness," are rare because weakness alone without the presence

of a preformed congenital sac seldom results in hernia.

Russell maintains that acquired hernia does not exist.

In Switzerland, compensation is based upon the following conditions: (1) the hernia must have appeared suddenly, must have been accompanied by pain, and must be of recent origin; (2) there must be proof that it was not present prior to the accident.

In Germany, in addition to these requirements, the subject must have been examined within forty-eight hours of the accident and the hernia must have immediately followed the accident.

The authors quote Sellings of the New York State Compensation Board as stating that traumatic hernia is a surgical curiosity of no practical importance, that only a small number of cases have been carefully investigated, and that the majority seem to be relegated to the convenient classification of "vocational hernia."

In the author's opinion the term "traumatic hernia" should be limited to herniæ due to direct violence. Lotheissen applies the term "accidental herniæ" to herniæ for which occupation is more or less responsible.

In an experience of thirty-one years at the Hospital for the Ruptured and Crippled, the authors have not seen a single case of tender, painful, recently acquired hernia accompanied by ecchymosis in which there was a history of injury or accident.

Hernia is practically always due to the presence of a preformed sac or open pouch of peritoneum, structural weakness about the hernial orifice due to poor development of the fascia or muscles, and some exciting cause such as straining at stool, coughing, sneezing, lifting, etc. Hernia results from the cumulative effect of many strains extending over a considerable period of time. Not infrequently, a patient complains of inguinal hernia on one side only but examination discloses double inguinal hernia. As a hernia is usually painless until it attains a large size, it may escape the patient's notice until an accident increases its size suddenly.

The authors recommend: (1) compensation for all cases of true traumatic hernia due to direct violence (the number of such cases is practically negligible); (2) a physical examination of all applicants for positions in industry; (3) the treatment of hernia developing in the course of duty incident to daily work as a condition due to anatomical weakness for which the industrial company is in no way responsible. WALTER C. BURROTT, M.D.

Ramlau-Hansen, O.: *Mobilization of the Sartorius as a Myoplastic Method in Operations for Abdominal Hernia* (*Sartoriusmobilisierung als myoplastische Methode bei Bauchhernienoperation*). *Hosp.-Tid.*, 1922, lxx, 33.

The author reports a case in which a large cicatricial hernia developed after an appendectomy done

by Overgaard. The insertion of the sartorius was separated from the iliac spine to serve as a covering for the large defect; the muscle was drawn medially, and after it had been stretched on its flat surface was sutured to the sheath of the rectus muscle on one side and to the external oblique muscle on the other. The result was very good. The only post-operative inconvenience was that the patient could not assume the "tailor position" with his right leg as rapidly as with the left.

PEPPER (Z).

Moure, P.: The Treatment of Umbilical and Other Ventral Hernia by Closure of the Ring with Bronze Wire (*Traitement de la hernie ombilicale et de certaines éviscérationes par le cerclage de l'anneau au fil de bronze*). *J. de chir.*, 1922, XIX, 159.

After a large, transverse, elliptical abdominal incision has been made, the hernia is isolated and the sac contents are returned to the abdominal cavity. The hernial sac, fascia, subcutaneous tissue, and skin are resected *en bloc*. An assistant makes traction upward upon four points of the peritoneal opening left, and a pursestring suture of bronze wire is introduced and tied, the hernial opening being thus tightly closed. The superficial tissues are then sutured in layers as usual.

The author maintains that this method is very simple and rapid, and results in a firm abdominal wall. The bronze wire is apparently well tolerated.

LOYAL E. DAVIS, M.D.

Marshall, V. F.: Pneumococcus Peritonitis. *J. Iowa State M. Soc.*, 1922, VII, 138.

By adding two cases of pneumococcus peritonitis of his own, the author brings the total number up to 102. One of Marshall's cases was that of a girl $2\frac{1}{2}$ years old with a history of lobar pneumonia three weeks previously. The onset was sudden with abdominal pain, vomiting, diarrhea, and a temperature of 104 degrees. The abdomen showed slight rigidity and a subumbilical tumefaction to the right of the median line. There was a leucocytosis of 28,000. A diagnosis of perforated appendix was made. At operation peritonitis with a yellow-green odorless seropurulent fluid was found. The appendix was normal. Drainage was followed by recovery. Laboratory findings showed a pneumococcus of undetermined type.

The second case was that of a 5-year-old girl whose previous history was negative. The onset of the peritonitis was sudden with high temperature, vomiting, diarrhea, and pain in the lower abdomen. There was extreme toxemia with some cyanosis and dyspnea. There was a right subumbilical tumefaction. The leucocyte count was 40,000 with a preponderance of polymorphonuclears. A diagnosis of pneumococcus peritonitis was made and confirmed at operation by the discovery of a yellowish-green and odorless seropurulent fluid containing a pneumococcus of undetermined type. During a stormy convalescence the patient developed a lower lobe pneumonia but this resolved.

In his conclusion based on the literature the author states that pneumococcus peritonitis is a disease of childhood affecting females more frequently than males. It may be primary or idiopathic, or secondary to some pre-existing pneumococcal focus elsewhere. The onset is sudden with a severe toxemia and a high mortality. There is a notable absence of local pain, tenderness, and rigidity such as is found in appendicitis and perforative peritonitis. The abdomen may have a "doughy" feeling. The temperature is usually very high and there is an associated diarrhea. The leucocyte count ranges from 20,000 to 40,000. The pneumococcus may be found in the urine. The exudate is usually characteristic, seropurulent, yellow-green, and odorless and contains a large amount of fibrin. Two forms are distinguished—a diffuse form and an encapsulated or lobulated form. In the former the treatment should be expectant and in the latter operative.

H. W. FISK, M.D.

Wagner, F.: Biliary Peritonitis (*Ueber den Stand der Frage der galligen Peritonitis*). *Deutsche Zeitsch. f. Chir.*, 1922, cxxviii, 116.

The author reports three cases in detail.

In Case 1 the biliary peritonitis was due to chronic ulcerous cholecystitis with perforation into the liver. The patient died.

In Case 2 there was a sudden exacerbation of an old cholecystitis. The gall-bladder was tense and contained stones. In the abdominal cavity was an infected biliary exudate. The wall of the gall-bladder showed beginning necrosis. This condition was complicated by a purulent pancreatitis and later by atony of the stomach and incarceration of a stone in the papilla. Transduodenal release of the stone was effected but the patient died.

In Case 3 an over-distended gall-bladder containing stones suddenly ruptured, discharging bile into the abdominal cavity. The discharge, however, was not infected.

Wagner discusses thirty cases of biliary peritonitis which are reported in the literature. On the basis of experiments on animals, Clairmont and Haberer conclude that a filtration process occurs in cases of bile obstruction.

The predisposing cause of biliary peritonitis is held by Schivelbein to be a gangrenous inflammation of the wall of the gall-bladder. Fiebich and Shoemaker are of the same opinion. Hugel claims microscopic perforations, and Horak, a crack in the vasa aberrantia in stagnation of the bile due to obstruction of the large bile ducts. In serial sections Sick and Fraenkel found a small rent in the wall of the gall-bladder. The rents in the separate layers did not lie over one another. The contents of the gall-bladder contained bacteria, but the biliary exudate in the abdominal cavity was sterile.

Nauwerk and Luebke found in a study of serial sections in an erosion of the mucous membrane of the gall-bladder a tear that extended throughout

the entire wall but did not run in a straight line. They attributed this to bursting due to over-distension of the wall caused by obstruction of bile. In Johansson's opinion the bile reaches the abdominal cavity by a roundabout route through the subserous lymph glands and the endothelial stomata. In this, the enlarged canals of Luschka may play a part.

Blad concludes from experiments on animals that in occlusion of the choledochus and the passage of gall-stones pancreatic juice flows into the choledochus and gall-bladder where an activation of trypsin occurs, the bile and gall-bladder wall are digested, and dialysis of the bile pigment is made possible. As a cause of the rare diapedesis which must be dependent upon an undemonstrable perforation, we must assume an occlusion of the gall-ducts and disease of the gall-bladder wall in which the action of the pancreatic secretion may play a rôle. Perforation of the gall-bladder is relatively harmless in the absence of infection but dangerous when infection is present.

JASTRAM (Z).

Latzko, W.: The Pathology and Treatment of Peritonitis (*Pathologie und Therapie der Peritonitis*). *Wien. med. Wochenschr.*, 1921, lxxi, 1913, 1917, 2115.

The first half of this article reviews briefly the facts known today regarding the etiology and pathology of peritonitis, particularly the puerperal form. In the latter, more than in surgical peritonitis, the prognosis is determined within a period of hours. The author considers puerperal diffuse peritonitis—even streptococcal peritonitis—by no means as dangerous as it is assumed to be in publications of recent date. In the operative treatment there are five requisites: (1) evacuation of the exudate which contains bacteria and toxins; (2) the sealing or exclusion of the focus of infection; (3) the treatment of distension and paralysis of the intestine; (4) the control of the peritonitic disturbance of circulation and the maintenance of cardiac power; (5) the prevention of the re-accumulation of the peritonitic exudate in the sites of predilection.

For the evacuation of the exudate a median laparotomy from the umbilicus to the symphysis is advisable because it gives the best exposure of the internal genital organs and drains the exudate between the liver and the spleen and the diaphragm. The introduction into the abdominal cavity of several liters of hot sodium chloride solution and the removal of the excess with gauze compresses is also recommended.

To remove the focus of infection in puerperal peritonitis extirpation or amputation of the uterus is too radical. In such cases, therefore, it is best to carry out small, rapidly completed procedures, such as the extirpation of a ruptured ovary, the suturing of a perforation, or the extraperitoneal opening of a retroperitoneal phlegmon through an iliocecal incision after closure of the laparotomy wound.

When there is marked distension of the colon a pointed bistoury should be inserted at several points for the release of the gas, and the puncture wounds then sutured. When there is meteorism of the small intestine with paralysis, the formation of one or more fistulae in the small bowel gives excellent results.

The best method of overcoming disturbances of peritoneal circulation consists in the intravenous infusion of sodium chloride solution with adrenalin and the administration of digalen, strophanthin, and caffeine.

Complete drainage of the abdominal cavity is out of the question. Every drainage tube introduced becomes so encapsulated that it will drain off only the fluid in the drainage canal around it. Drainage of the cul-de-sac of Douglas and the flanks is aided by placing the upper part of the body in the elevated position (Fowler's position).

The author operates according to the principles mentioned as soon as the diagnosis is established. Operation is contra-indicated only in the last extremity and when there are signs of very severe sepsis.

Latzko has observed excellent results from the introduction of ether into the abdomen; injurious effects were never found at autopsy.

HROMADA (Z).

GASTRO-INTESTINAL TRACT

Conlin, F.: The Modern Medical Treatment of Gastric Ulcer. *Nebraska State M. J.*, 1922, vii, 113.

The cases of peptic ulcer amenable to medical treatment are classified as: (1) those without perforation, (2) those without perigastric abscesses, (3) those in which secondary carcinoma is definitely excluded, (4) those without hour-glass or other serious deformity, (5) those without a history of severe hæmorrhage, and (6) those without organic pyloric obstruction.

Rosenow concludes that peptic ulcer is due to the entrance of bacteria into the blood and that attention should be given to foci of infection.

Many types of medical treatment have been advocated. Leube placed the patient in bed on a milk diet for fourteen days. Lenhartz advised protein food to combat the acidity and build up the body strength. Sippy's treatment consists in the protection of the ulcer from the gastric juice until healing takes place.

Malnutrition of the gastric mucosa causes a loss of the normal resistance to the pepsin which has been permeated by the hydrochloric acid. This can be prevented by neutralization of the gastric secretion by frequent feedings, and by the use of alkalies, sodium, calcium, and magnesium carbonate. Excessive nausea and vomiting may be combated by duodenal feeding with the Einhorn tube. According to Freidenwald, this method gives relief in 86 per cent of cases.

Smithies has called attention to the fact that in 35 to 40 per cent of cases the acidity is within the normal limits, and that in a number of cases of hyperacidity there is no pain. Carlson states that in all probability the gastric pain is due to increased tension of the walls of the stomach due to increased intragastric pressure. This has been demonstrated fluoroscopically by Carman at the Mayo Clinic. Friedman states that: (1) there are typical ulcer pains after ulcers have been healed, leaving only scars; (2) there are typical pains in achylia gastrica; and (3) clinical improvement may occur with complete disappearance of pain and persistent hyperacidity. He concludes that hyperacidity is a result, and not a cause, of ulcer.

Smithies states that carbohydrates do not unite with hydrochloric acid, and the free acid causes relaxation of the pyloric sphincter. Proteins unite with the acid and hence cause delayed sphincter relaxation and an increase of 50 per cent in the gastric secretion; the stomach is therefore subjected to more intense peristaltic activity without pyloric relaxation. His treatment, which is based on these physiological facts, consists of:

1. Rest for three weeks.
2. Local applications to the abdomen.
3. Fasting for the first twenty-four to forty-eight hours. During this time the patient is allowed to chew paraffin wax and is given by rectum 500 to 1,000 calories of a nutrient mixture consisting of 1 oz. of 50 per cent alcohol and 1 oz. of glucose with the addition of normal salt solution to make 240 c.c.m.

An ulcer may be considered healed when long freedom from symptoms is associated with normal gastric function, the absence of blood in the stools, the X-ray demonstration of a complete change in the ulcer, and normal peristalsis without spasm or hour-glass deformity.

Most of the failures in the treatment of gastric ulcer are due to failure to keep the patient under observation and to protect the stomach from irritation. Repeated X-ray and stool examinations should be made.

In conclusion Conlin states that with the new and more exact methods of diagnosis and observation medical treatment will cure a large percentage of gastric ulcers.

MIRIAM R. HOOS, M.D.

Moorhead, T. G.: Venous Thrombosis and Gastric Carcinoma. *Practitioner*, 1932, LVIII, 252.

The author calls attention to the diagnostic value of intravenous thrombosis as a sign of visceral malignant disease found not only in abdominal cancerous cachexia, but also frequently as the earliest sign of a latent carcinoma. As evidence of the latter he cites the following case:

A laborer, aged 43 years, entered the hospital complaining of a swelling of the right side of the neck. He had not suffered any injury and before the appearance of the swelling was well. Examination revealed thrombosis of the internal jugular vein.

There was no evidence of malignant disease of the chest or abdomen. The process gradually cleared up but later appeared on the opposite side of the neck and became progressively worse.

Four weeks after the patient's admission to the hospital he complained for the first time of abdominal pain and nausea. He died a few days later and at autopsy a cancer was found involving the entire lesser curvature of the stomach almost to the pylorus, the surface of which was ulcerated. Microscopic examination of the thrombosis did not reveal the presence of any micro-organisms or cancer cells, although it undoubtedly had its origin in the cancer area.

The author cites the following case in which the thrombosis occurred as the terminal sign:

A man, aged 42 years, reported complaining of pain in the stomach, vomiting, and loss of weight. Gastric ulcer was diagnosed and a gastro-enterostomy was performed. The patient improved in health and gained in weight. Four months later there was a recurrence of the gastric symptoms with much pain in the right leg. A diagnosis of carcinoma of the stomach was made. During the remaining six weeks of the patient's life practically every vein in the body became thrombosed.

Two other cases are also cited, one in which thrombosis of the axillary and subclavian veins occurred several weeks previous to the abdominal complaint which at operation proved to be an inoperable adenocarcinoma of the ovaries and uterus, and another in which thrombosis of the femoral veins occurred in a patient suffering from carcinoma of the stomach and pancreas.

The author concludes that these cases, whatever their cause, fall into two classes, early and late, the latter caused probably by the cachexia and the former due probably to the entry of cancer cells or micro-organisms into the blood stream.

WILLIAM J. PECKEY, M.D.

Spriggs, E. L., and Marxer, O. A.: A Study of Sixty-Five Cases Seeking Relief After Short-Circuiting Operations. *Lancet*, 1932, CIV, 702.

In the sixty-five cases reviewed, a gastro-enterostomy had been done in fifty-one, a partial colectomy in nine, and an ileosigmoidostomy in four. About half of the patients who sought further treatment after gastro-enterostomy recovered from their symptoms or improved greatly with the lapse of time and suitable medical treatment. All but one or two of the gastro-enterostomies were of the posterior variety. In four cases a second operation for complications was done soon after the first. Most of the operations were done by leading surgeons.

The conditions complained of included pain, weakness, wasting, diarrhoea, and vomiting. The gastric acidity was greatly reduced after the gastro-enterostomy. The passage of food varied from a rapid rush to evacuation requiring forty-eight hours. When the emptying time was short, the patient

seemed to be most wretched and uncomfortable. In twenty-seven cases in which only one examination was made the food left the stomach entirely through the stoma. In some of the cases in which the pylorus was known to have been sutured there was patency. In twelve cases the food left by the pylorus during one examination and by the stoma during another. In seven cases it left by both openings. In four cases nothing passed by the stoma in spite of manipulation or a change of the subject's position.

In thirteen cases bile was present in the stomach contents. In ten cases deformity or contraction of a loop of jejunum was observed in serial films. In three of four of these patients who were operated upon jejunal ulcers were found; in the fourth the loop was found to be twisted between a former lateral anastomosis and the stoma. In one case a gastric ulcer for which the operation had been performed persisted unhealed.

Of forty-nine patients seen, thirty-five were treated medically; fourteen recovered, seventeen showed improvement, and four showed no improvement. Of fourteen treated surgically, nine are well, four are greatly improved, and one is dead. In most of the cases in which recovery did not result, abnormalities which could be relieved by a second operation were discovered. These included regurgitation of bile, a stoma not in lowest portion of stomach, jejunal loops not of abnormal appearance, and ulceration about the opening.

Operations on the colon included five ileosigmoidostomies and nine partial resections of the colon. The results were far from satisfactory in most instances, the original symptoms persisting after the operation. It was evident that the operation was justifiable in only two, or perhaps three, cases.

H. W. FLECK, M.D.

Schnitzler: Stenosis of the Intestines (Ueber Darmstenosen). *Wien. med. Wochenschr.*, 1922, lxxii, 125, 187, 224.

In cases of intestinal occlusion pathologico-anatomical diagnosis must concede first place to functional diagnosis as the function of the intestines is of the greater importance. In the foreground stands the purely mechanical function which may be hindered by gross disproportion, disturbances in the normal physiological action of peristalsis without mechanical hindrance, or by a combination of both factors. For example, an incomplete mechanical hindrance may, through functional disturbance, become a total occlusion because of weakening of the motor strength of the upper portion of the intestine. Relative stenoses which allow the intestinal contents to pass when peristalsis is slow become absolute obstructions when the peristalsis is strong. Many forms of postoperative intestinal obstruction may be explained by the united working of these two factors.

It is of the first importance to the surgeon to determine whether the cause of the obstruction is a

mechanical or a purely functional condition as operation promises results only in the former type of case.

While in chronic stenoses the diagnosis of the location and character of the obstruction is often simple, in acute cases difficulty is encountered. Extra- and intra-abdominal diseases (pleurisy, diaphragmatic pleurisy, meningitis, nephrolithiasis, cholelithiasis, embolism and thrombosis of the mesenteric vessels, and peritonitis) often suggest intestinal obstruction. In acute ileus many of the characteristic clinical symptoms may be absent. Therefore in doubtful cases one should not waste time in protracted examinations but should operate early as without intervention very few cases can be cured. Every delay means great injury to the patient.

In operation a careful technique is the chief essential. This means sufficient anaesthesia, induced preferably with ether, speedy localization of the stenosis, an incision not too large, and the prevention of eventration. For many years the author has opened the abdominal cavity in the ileocaecal region. The localization can be done most quickly from the caecum as from here it can be determined at once whether the obstruction is to be sought for in the small or the large intestine. In obstruction of the small intestine the loops leading to the caecum are collapsed. As a rule in such cases the obstruction will be found in the lower abdomen on the right side.

The protrusion of inflated intestinal loops, which is particularly disturbing in a median laparotomy, is prevented by the ileocaecal incision. Moreover, if the formation of an intestinal fistula is necessary the ileocaecal incision is far more advantageously situated than the median incision with regard to the escape of faecal matter. In ileus of the large intestine not permitting radical methods the caecal incision facilitates a marginal caecostomy. This incision is preferable also because, masked by the ileus, there may be a senile appendicitis and in this condition a median incision places the patient in great danger of peritonitis.

There are no conditions in the abdominal cavity regarding which a surgeon with sufficient practice cannot easily inform himself through the ileocaecal incision. Even when, for example, the intestine disappears into a left obturator hernia, it is always less of a strain upon the patient to complete the operation by a short incision on the left side after closing the wound on the right than to make an unusually large median incision.

The author recommends the establishment of intestinal fistulae in postoperative intestinal occlusion and peritonitis, as was urged by him in 1901.

HROMADA (Z).

Van Beuren, F. T.: Lethal Factors in Acute Ileus. *Ann. Surg.*, 1922, lxxv, 423.

Acute intestinal obstruction may be defined as a local condition associated with sudden abnormal

stoppage of the intestinal current between the stomach and anus.

Acute ileus is a general condition the syndrome of which appears when intestinal obstruction has been present long enough to make its effect manifest.

The proper treatment of acute ileus, whatever its cause, is similar in every case, while the appropriate treatment of intestinal obstruction varies according to the mechanical, spastic, or paralytic character of the condition. Acute ileus resulting from strangulated hernia requires treatment quite as much as acute ileus arising from postoperative bands and adhesions.

The mortality from obstruction varies from 30 to 60 per cent. The author's operative statistics show that it is less than 20 per cent when operation follows within twenty-four hours after the onset of symptoms, and over 70 per cent when operation is delayed for over seventy-two hours.

There is a wide variation in the time of onset of the symptoms of ileus following obstruction. The outcome will be determined by three factors: (1) the patient's resistance, (2) the intestinal damage, (3) the formation of poisons within the intestine. It is unknown whether or not these factors are related.

Basically intestinal damage is interference with the intestinal blood supply. There is evidence to show that the degree of injury to the intestine is no criterion as to the toxicity of the intestinal contents. This has been observed by the author in clinical cases as well as in animals.

A fourth deadly factor is shock. This appears relatively early in obstruction when the mesenteric blood supply of a portion of the intestine has been obstructed by volvulus, thrombosis, or other types of strangulation. From the author's observations the more sudden the onset of blood stasis and the larger the extent of intestine involved the greater the accompanying shock. A fifth factor is dehydration of the tissues due to an output of fluids greater than the intake.

At least some of these lethal factors appear to be interdependent or to react upon each other. Each is variable in different cases but all are present in almost every case of acute ileus.

Delay on the part of the surgeon in acute ileus is just as dangerous as any of the conditions mentioned.

(CLAYTON F. ANDREWS, M.D.)

Schroder, C. H.: Congenital Obstruction of the Duodenum: Report of a Case. *J. Am. M. Ass.*, 1922, LXXVIII, 1039.

Schroder reports a case of congenital obstruction of the duodenum in an infant. Two operations were performed but the condition was found only at autopsy.

The clinical signs were projectile vomiting, loss of weight, retention, marked visible peristalsis, and a tumor in the pyloric region. The first operation revealed marked dilatation of the duodenum

ending at the junction of the second and third parts. As nothing could be found to explain this, the abdomen was closed. A jejunostomy was later done, but was not successful in improving the patient's general condition, and death resulted.

Autopsy disclosed a stomach one-third larger than normal. The duodenum immediately beyond the pyloric sphincter was enormously dilated in the first portion, the dilatation ceasing abruptly 1 cm. proximal to the ampulla of Vater where the lumen of the bowel was reduced to an oval opening $\frac{3}{4}$ in. in diameter by a diaphragm of mucous membrane 1.5 mm. thick. This diaphragm contained all the coats of the bowel wall.

The etiology of the obstruction is obscure. The differential diagnosis is difficult, the condition resembling pyloric stenosis.

X-ray examination with the barium meal is the only method of diagnosis. Gastro-enterostomy is the only cure.

H. A. McKimsey, M.D.

Duval, P., and Basset, A.: Co-Existence of a Stenosis of the Third Portion of the Duodenum Due to Mesenteric Compression and an Ulcer of the First or Second Portion (*Coexistence d'une sténose de la troisième portion du duodénum par compression mésentérique et d'un ulcère de la première ou deuxième portion*). *Bull. et mém. Soc. de chir. de Par.*, 1922, XLVIII, 391.

The authors discuss the technicalities of the treatment of a duodenal ulcer co-existing with stricture of the third portion of the duodenum due to mesenteric compression. The only cases which they were able to find in the literature were reported by American authors. Duval and Basset have recently operated upon a case of juxta-pyloric stenosing duodenal ulcer with supra-mesenteric duodenal dilatation. A transmesocolic duodenojejunostomy with a supplementary jejunojejunostomy was followed by excellent recovery.

The various types of lesions and the value of the different operative procedures applicable to them are discussed and illustrated. The authors are of the opinion that when mesenteric compression of the third portion of the duodenum is coincident with an ulcer of the first portion, both the duodenal dilatation and the duodenal ulcer should be treated. The only treatment of duodenal dilatation is duodenojejunostomy, but the treatment of the ulcer depends especially on the technical conditions under which the duodenojejunostomy must be done. As the first manoeuvre when the two conditions are associated it is necessary to raise the transverse colon and to determine whether the duodenojejunostomy can be submesocolic, transmesocolic, or supramesocolic.

If a submesocolic operation can be done it may be combined with a direct operation on the ulcer or a short gastroduodenal subpyloric anastomosis. If a transmesocolic or supramesocolic duodenojejunostomy must be done the duodenal operation becomes technically impossible because of the lack of any

area on the second portion of the duodenum in which to perform a plastic operation with resection of the ulcer and a duodenojejunostomy. It is then necessary in cases of non-stenosing ulcer to resort to double (gastro- and duodenojejunal) anastomosis with or without exclusion of the pylorus. The technique of this double anastomosis depends upon the possibility of making the duodenojejunostomy submesocolic or the necessity of making it transmesocolic or supramesocolic. If the duodenojejunostomy can be submesocolic, the gastro-enterostomy made at first on the jejunum should be the simple latero-lateral gastro-enterostomy, and the duodenojejunostomy will also be latero-lateral, which is the technique of Kellogg and easy of execution. If the duodenojejunostomy must be transmesocolic or supramesocolic the latero-lateral method becomes impracticable and it will be necessary to resort to a Y-duodenojejunostomy attached to lateral gastro-enterostomy.

W. A. BRENNAN.

Judd, E. S.: Bleeding Ulcer of the Duodenum Associated with Cholecystitis. *Ann. Surg.*, 1922, lxxv, 459.

Four cases of bleeding duodenal ulcer are described in which the pathologic condition in the gall-bladder was more extensive than that in the duodenum. In each case the duodenal ulcer was demonstrated early, and the gall-bladder presented severe cholecystitis and contained stones and infected bile. There was thickening of the gall-bladder wall, and complete destruction of the mucous membrane. A similarity in the clinical history was noted in that the chief symptom in each case was severe gastro-intestinal hæmorrhage occurring at intervals of a few months, usually when least expected, and frequently after the patient had been symptom-free for some time. Severe pain had not been present in any of the four cases.

In one patient who had had very severe hæmorrhages at intervals for many years, and a severe hæmorrhage just before his arrival at the Mayo Clinic, no evidence of a break in the duodenal mucous membrane or vessel erosion as a source of the bleeding was found at operation. A great deal of scar tissue was present in the duodenal wall, the tissues of the gall-bladder were inflamed, and a definite hepatitis had progressed almost to a stage of cirrhosis. No jaundice or ascites was present.

The other three cases showed at operation definite ulceration on the anterior part of the duodenum away from the larger vessels, but this appeared quite unimportant. Extensive hepatitis and cholecystitis with cholelithiasis and infected bile in the gall-bladder were present in all three cases.

The findings in the cases reported emphasize the importance of gall-bladder infection as a possible etiologic factor in gastro-intestinal bleeding. The hæmorrhages were of the massive type, such as occur from the pancreaticoduodenal artery, but in

each case it was quite clearly shown that none of the larger vessels could have been involved by the ulcerations.

Rankin, of the Mayo Clinic, in a recent review of the histories of fifty-five cases in which blood was present in the vomitus, the stool, or both, but at operation a pathologic condition was found in the gall-bladder, stated that thirty-six were those of females and nineteen those of males, and that the average age of the patients was 30.5 years. Blood was present in the vomitus in thirty-two cases, in the stool in eighteen, and in both the stool and the vomitus in five.

Hæmorrhage into the stomach or intestine may occur when the lesion is in the gall-bladder or liver, and it is difficult to determine the bleeding point and whether there are several of them or only one.

Cases of cholecystitis in which there is occasional bleeding into the stomach or intestinal tract should be grouped with the toxic cases of gastro-intestinal bleeding as the condition is undoubtedly due to the effect of toxins from the infected gall-bladder or liver.

In deeply jaundiced patients, bleeding sometimes occurs from all mucous membrane surfaces, probably because of a changed condition of the blood due to the presence of bile. It is possible, however, that some other change or disturbance of the function of the liver may be the factor that causes changes in the blood or other tissues leading to toxic bleeding.

There is an abundance of evidence to show that cholecystitis and hepatitis may be the source of the infection which results in bleeding, and there is evidence also suggesting that cholecystitis may be the source of the infection, causing the symptom even in the presence of ulcer of the stomach or duodenum.

The details of the histories of the four cases are presented.

G. H. JACKSON, JR., M.D.

Ellis, J. W.: The Cause of Death in High Intestinal Obstruction. *Ann. Surg.*, 1922, lxxv, 429.

The mortality from high intestinal obstruction is given by various surgeons as 50 to 60 per cent. The signs of this condition are profound toxæmia, pain, tenderness, rigidity, vomiting, and collapse. As the same signs may be present in acute pancreatitis and acute fulminating peritonitis, the differential diagnosis is difficult and at times even impossible.

Opinion differs as to the best treatment. Some eviscerate and empty the affected loops by means of a Monk or Moynihan tube. Others prefer an enterostomy. In spite of these methods the mortality is high and death is due to toxæmia. The author reviews the literature concerning the source and nature of the toxin. One group of investigators discussed a poison which attacks the nervous system, causing convulsions. Another group dealt with a toxin which attacks primarily the gastro-intestinal

tract, causing vomiting, retching, diarrhea, and tenesmus.

Many theories have been advanced as to the cause of death. It has been attributed to: (1) auto-intoxication from stagnation and putrefaction of intestinal contents, (2) bacteremia, (3) secretions emptied into the upper intestines, (4) cerebral anemia and resulting shock from bleeding into the splanchnic area, (5) reflex irritation of the sympathetics, (6) disturbance of circulation in the intestinal wall, (7) perversion of the normal function of the cells of the duodenal mucosa, and (8) rapid and extreme dehydration of the tissues.

The clinical picture closely resembles that of acute pancreatitis, ileus, and acute peritonitis. In the author's opinion the toxins causing death in these conditions are closely allied chemically. In ileus they arise in the cells of the duodenum and in pancreatitis they arise in the cells of the pancreas. In intestinal obstruction the major portion of the toxin is forced into the lymph stream and then into the general circulation. These deductions were made on the basis of repeated animal experimentation. The experimental results correlate and explain some of the varied opinions of other workers and confirm the view that the site of origin is in the cells of the intestinal mucosa.

Ellis draws the following conclusions:

A poison can be isolated from the intestinal contents in cases of high obstruction by precipitation with alcohol, extraction with boiling water, and reprecipitation with the aid of magnesium sulphate. This is impossible in the case of the normal animal.

The poison is identical with that found in portal obstruction, acute fulminating non-bacterial peritonitis, and in animals whose adrenals have been removed. The clinical resemblance of such conditions is due to the similarity of the toxins. Since erepsin has no effect on the toxin, it is neither a protease nor a hetero-protease. Gastric lavage and saline solution given by rectum and intravenously are useful in removing the poison. It may be advantageous to add adrenalin to the saline solution.

MERLE R. HOON, M.D.

Eichhoff, E.: Contributions to the Surgery of the Rectum: A Report on the Carcinomata of the Rectum Treated in the Breslau Clinic (Beiträge zur Chirurgie des Rectums: Bericht ueber die an der Breslauer Klinik behandelten Rectum-carcinome). *Beitr. z. klin. Chir.*, 1922, CXXV, 17.

The author reports on material from 1879 to the beginning of 1920. In all, there were 1,021 cases. Of these, the cases of 221 patients (21.6 per cent) have only partial statistical value (age and sex) for they were either not admitted, their condition being absolutely hopeless, or they at once refused surgical treatment. The other 800 cases formed the basis of the author's study.

Of these 800 cases, 610 (59.7 per cent of the total 1,021) were treated. In the other 190 cases operable

rectal carcinoma was diagnosed but the patient refused to allow an operation. Of the 610 treated cases, 316 (51.8 per cent of the total) were operated on. In 94 cases (50.2 per cent of the total) radiotherapy alone was possible. Three hundred and twenty-six persons (51.9 per cent of the total) were operated on radically. An artificial anus was formed in 166 cases (16.2 per cent of the total). Eleven cases (1 per cent of the total) were treated by palliative methods (curettage, dilatation). In thirteen cases radical operation was attempted but could not be completed because of technical difficulties. Sixteen cases (1.5 per cent of the total) were operated on for ileus, two radically. In the remaining fourteen cases an artificial anus was formed.

The proportion of male patients to females was 1.64:1. The incidence of the condition is greatest between the fortieth and seventieth years of age. In males it develops most frequently in the sixth and seventh decades, and in females in the fifth and sixth decades. Forty-five of the patients (twenty-four men and twenty-one women) were less than 30 years of age. The youngest patient was 17 years old. Of the patients under 30 years only thirteen were operable, two died just after the operation, four in the course of the first year, one in about five years. Of four who are still living one has been free from recurrence twenty-seven years, another fifteen years, and one, one year. The other thirty-two cases were inoperable.

The author distinguishes between the carcinomata of the anus, the pars perinealis, the ampulla, the uppermost regions of the pars pelvina, and those which extend to several segments of the rectum. Of the records of the 610 cases treated, only twelve failed to give the exact location of the tumor. Carcinoma of the anus is very rare (two cases, 0.3 per cent). Its prognosis is not unfavorable but it develops quickly and readily forms glandular metastases (inguinal glands). There were forty-four cases of carcinoma of the pars perinealis (7.3 per cent); all of these were operable. Carcinoma of the pars perinealis with extension to the lower part of the ampulla was found in sixty-nine cases (11.5 per cent); fifty-five of these were operable. The greatest number of the carcinomata involved the ampulla (363 cases, 60.7 per cent, of which 177 were operable and 186 inoperable). In sixty-eight cases (11.3 per cent) the carcinoma was in the upper part of the ampulla and on the margin. Only fifteen could be operated on radically. In 37 cases (6.1 per cent) the tumor spread over most or all of the rectum; ten cases were radically operated on.

Three hundred and thirty of the carcinomata (55.1 per cent) were circular and 268 (44.8 per cent) were insular. Of the latter, 132 were situated in the anterior wall, seventy-two in the posterior wall, thirty-four on the lateral walls. The carcinomata of the ampulla were mostly ring carcinomata.

Metastasis of carcinomata of the rectum generally takes place by the lymph stream. Blood stream

metastasis is rare. Peritoneal carcinoma is very rare. In three cases there was a skin metastasis on the scrotum and the buttocks.

The early diagnosis of carcinoma of the rectum can be made with certainty only if the physician can devote sufficient time to the patient to make a careful examination. In 98.5 per cent of all cases the diagnosis could be made by a careful examination with the finger. In approximately 60 per cent of the inoperable cases the patients had sought medical aid in time but had been given conservative treatment for hemorrhoids, chronic catarrh of the rectum, etc., no rectal examination having been made. Only thirty-four (8.5 per cent) patients came for treatment in the first four weeks of the condition, 137 (55.3 per cent) in the course of the first year, 152 (26.5 per cent) after one year, and 70 (12.2 per cent) after two years.

Exploratory laparotomy is a diagnostic aid in doubtful cases, and is particularly indicated in cases of high tumors. It revealed operable carcinomata in 50 per cent of the cases. When there is the least probability of success radical treatment is indicated.

In the Berlin clinic an artificial anus is formed only when absolutely necessary. The author does not favor preliminary colostomy. This is indicated only by threatening conditions, in threatened or complete obstruction of the bowels or in operable cases in which, on account of the patient's poor general condition, the more serious operation is inadvisable until later.

Most of the radical operations (about 75 per cent) were done under general anaesthesia. The mortality from pulmonary affections was slight (only 11.2 per cent). Nearly all known methods of amputation and resection were employed during these years. No one amputation method should be followed in all cases. The anal portion of the rectum should be preserved whenever possible. It is often sufficient to resect only the coccyx, but in most cases the work of the operator is made easier by resection of the sacrum. In only 15 per cent of the cases of resection was it possible to obviate opening of the peritoneal cavity. Of the amputations about 50 per cent could be performed by an extraperitoneal procedure. The peritoneum should be closed as exactly as possible. The best method of caring for the end of the intestine after amputation is the formation of a sacral anus. This serves best for the application of the closing bandages. In amputation Kuettner brought the entire released rectum as well as the sphincter portion into the sacral opening and, in order to prevent contact of the fresh surfaces of the wound with the contents of the intestines as long as possible, did not bring the part to a level until some time after the operation. The procedures suggested for the construction of a new sphincter were employed in only five cases. They were generally avoided because in the use of questionable methods fresh wounds are produced and the danger of infection is increased. The drawing-out method is

adapted particularly to cases of deep tumors in which the intestine must be removed from close to the sphincter muscle. The upper end of the intestine must be sufficiently mobilized so that no stretching will take place. Forty-four cases were operated on according to the Kuettner method of sacral protrusion. Entire rejection of laparotomy combined with amputation or resection of the rectum is unwise. These methods are of value in many cases of high carcinomata but should not be applied to all cases. It is going too far to begin the operation on every high carcinoma with an abdominal incision. Most of these cases can be managed by the sacral method. The combined method beginning with an abdominal incision should be used only in doubtful cases. In some instances the abdominal operation is completed without trouble, but the sacral invasion meets with insurmountable technical difficulties so that the operation cannot be completed. For these reasons the combined method was seldom used in the Breslau clinic. Only twelve cases were operated on in this manner.

The after-treatment is of great importance for successful results. Until the tenth day following the operation the stool must be held back. The dangers of this period are great. Ten patients operated on developed obstinate cystitis, which in two cases led to nephritis. Retention of urine must be prevented by catheterization. Iodoform poisoning following tamponade occurred in three cases, and in two resulted in death. Thereafter iodoform gauze was no longer used.

Of the 326 patients operated on radically, seventy-nine (24.5 per cent) died. The primary mortality of the various methods of operation was as follows: excision (ten cases), 0 per cent; amputation (113 cases), 32.8 per cent; resection without operation and without protrusion (155 cases), 20 per cent; invagination (4 cases), 25 per cent; protrusion according to Kuettner (44 cases), 22.7 per cent. The combination of the sacral protrusion method with abdominal incision greatly increases the danger of death. Of four patients thus operated upon three died. If these four cases are left out of consideration the postoperative mortality of sacral displacement was 17.5 per cent. In two cases a gas phlegmon developed after the radical operation.

Of the 247 patients who lived the fate of 209 is known. Eighty-seven survived the radical operation more than three years (32.5 per cent of those regarding whom it was possible to obtain information). Fifty-nine patients lived longer than five years and forty-one longer than eight years. Thirty-one lived more than ten years, and of these twenty-five are today entirely well. The six others died eleven, fourteen, eighteen, nineteen, and twenty-three years after the operation. Of the entire 1,021 patients 8.5 per cent lived longer than three years after the operation and 3 per cent lived longer than ten years. This poor showing is to be attributed, not to the poor results of the radical treatment, but to the fact that most of the

cases are not seen when operable. A comparison of the primary and the functional results obtained by the various methods of caring for the intestine shows that the drawing-out process had the highest mortality and the least favorable functional results. A fact worthy of note, however, is that in an entire series of cases complete continence was obtained by preservation of the sphincter portion. The drawing-through process is preferable to amputation. The mortality following primary circular suture and that following the displacement method of Kuehnert are equal, but the latter caused fewer deaths from infiltration of the wound. The best conditions for continence are obtained by primary circular suture. The functional results given by the sacral protrusion method were excellent.

In inoperable cases the formation of an artificial anus is justified to alleviate suffering. Kuehnert made his incision of the skin toward the median line and after removing the sheath of the rectus muscle displaced the muscle medially and opened the peritoneum through its posterior sheath. By this method the rectus muscle was utilized to close the artificial anus. The formation of an artificial anus may often prolong life astonishingly. As a rule, however, death occurs in the first year following the operation (62 per cent of cases). Thirty-one per cent of the patients lived more than one year; 15 per cent, longer than two years; 6 per cent, longer than three years; and 2 per cent lived longer than five years. Three patients died in the seventh year, two of cancer and one of pulmonary tuberculosis. Of 170 patients with operable tumors who, however, refused to allow an operation, 39 per cent lived longer than one year, 15 per cent longer than two years, 10 per cent longer than three years, 4 per cent longer than four years, and one longer than five years. Two patients committed suicide in the fifth year of the disease. So far as the author is able to judge, the results of radiotherapy are not favorable.

KONJETZNY (Z).

Moon, L. E.: Anal Fissure and Its Treatment. *Schrauka State M. J.*, 1922, vii, 131.

Anal fissure, anal ulcer, and anorectal ulcer are the same lesion and are not to be confused with rectal ulcers which are different in etiology and symptoms.

Fissures are most frequently seen in the posterior commissure, next most frequently in the anterior commissure, and least frequently on the lateral walls of the anus. As a rule they occur singly.

Because of the rugæ of the anal canal, an ulcer appears as a crack or fissure extending in a longitudinal direction, but when the anal canal is dilated and the mucous membrane is smoothed out, the ulcer will be found in many cases to be round. Its depth may vary from that of the mucosa to that of the muscular layers. At the lower end of the ulcer is a redundant skin tag called the "sentinel pile of Brodie." At the upper extremity of the

fissure a small tag of mucosa or a polyp is frequently found.

The most prominent symptom is pain either before, during, or after defecation. As a rule it occurs an hour afterward and persists a variable period. With the pain there may be an intermittent spasm of the sphincter.

Examination to determine the presence of a fissure should be done carefully to avoid causing pain. Palliative treatment is of value in cases of the very superficial type of ulcer.

Surgical treatment consists in excision of the ulcer. The method employed by the author is as follows:

The lower bowel is cleansed with an enema, scopolamine and morphine are given one hour before operation, and superficial and deep anesthesia of the anal area is induced with $\frac{1}{4}$ per cent novocaine. The skin about the anus is grasped with forceps at four equidistant points and the ulcer exposed by everting the anal canal. The fissure is excised and the sphincter spasm relieved by incising the superficial fibers of the sphincter. A single layer of gauze is laid in the wound to prevent adhesion of the edges. When granulations are formed the gauze is removed. Beginning with the morning of the second day after operation, paraffin oil is given twice daily to soften the stool.

I. E. BISHKOW, M.D.

Cunéo, B.: A New Method for the Formation of a Continent Iliac Anus (Un nouveau procédé d'anus iliaque continent). *Presse méd.*, Par., 1922, xxx, 333.

In Cunéo's method continence is obtained by compressing the intestine a little higher than its artificial orifice by means of an apparatus with an action similar to that of a coprostatic forceps which is placed on the intestinal teguments perpendicularly to the axis of the intestine.

The apparatus is made of duralumin and weighs 25 gm. It has two parts: one in the shape of a U and the other a rigid plate which slides between the vertical sides of the U and has attached to its under side a compressing bar. The transverse part of the

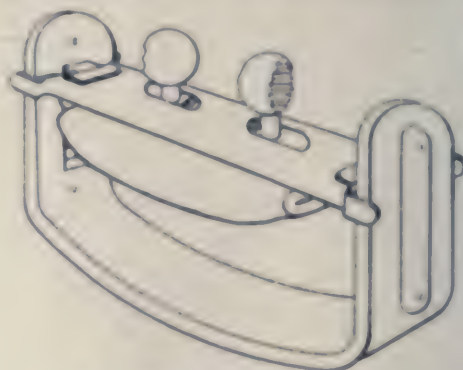


Fig. 1. The compressing apparatus.



Fig. 2. Outline of the skin incisions.



Fig. 3. Exteriorization of the upper end of the intestine and the insertion of its extremity through the internal flap.



Fig. 4. Anus after healing of the operative wound, with the compressing apparatus in place.

(A New Method for the Formation of a Continent Iliac Anus—Cunéo.)

U and the compressing bar are covered with rubber. The former is inserted in a cutaneous tunnel made for it under the terminal part of the intestine and the latter rests on the tissues lying over the intestine. The apparatus is easily taken apart and can be withdrawn and cleaned at any time. The patient easily learns to manipulate it and to determine the amount of intestinal compression necessary. It can be tolerated six hours or more continuously without pain or injury to the intestinal tunics.

W. A. BRENNAN.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Hischen, K.: *The Surgery of the Bile Passages: Functional, Bacteriological and Roentgen Diagnosis, Operative Physiology, Anatomical and Clinico-Physiological Operative Precautions* (Die Chirurgie der Gallenwege: Funktionelle, bakteriologische und Roentgendagnostik, Operationsphysiologie, anatomische und klinisch-physiologische Operationsvorbereitungen). *Schweiz. med. Wchnschr.*, 1921, li, 1222.

By means of the Einhorn duodenal tube it is possible to obtain the secretions of the organs to be examined in a pure state and under nearly physiological conditions. The entrance of the tube into the duodenum can be determined by the fluoroscope and the aspiration of alkaline intestinal juice containing bile. If the duodenum is washed clean and the excretion of bile into the duodenum then provoked by means of chemical substances such as magnesium sulphate, sodium sulphate, sodium phos-

phate, or a 5 per cent solution of Witte peptone, there results a flow of 10 to 20 c.cm. of bile from the common bile duct which is clear, transparent, and poor in mucus. This is followed quite suddenly by 30 to 100 c.cm. of dark, viscid, and concentrated gall-bladder bile. Following the gall-bladder bile, a slow and uninterrupted flow of clear, light, and thin liver bile is obtained.

These three biles are collected separately in sterile containers and subjected to microscopic, chemical, and bacteriological examination. The findings give clinically valuable information regarding the bacteriology of the bile passages and duodenum and the chemistry of the bile and pancreatic enzymes. The rapidity of the appearance of the three portions of bile, the manner in which they were discharged, their quantity, color, consistency, and transparency, mucus content, and cytologic and bacteriological character all are of diagnostic import. The bacteriological examination of the duodenal secretion and of the stimulated bile secretion are of considerable importance with regard to the etiology of the inflammatory diseases of the bile ducts. The most valuable clinical information is the definite demonstration of typhoid infection in typhoid carriers.

Normally the gall-bladder is not visible in the roentgen picture. Every gall-bladder seen on the roentgen plate must be considered as pathologically enlarged and dilated. For technical reasons, it is as yet impossible to obtain clear and unobjectionable roentgen pictures of the gall-bladder and gall-stones in every case. Of greater importance is the indirect roentgen demonstration of injuries of the bile

passages in the form of their displacement or distortion or the displacement of the adjacent organs or close or distant signs of irritation in the gastro-intestinal tract. The postoperative roentgen findings show that in the majority of the cases (78 per cent) the same changes in the anatomical relationship present before the operation are still present afterward. The conclusions with regard to surgical practice to be drawn from them are that operation must be performed before permanent anatomical changes have been established and that a careful operative technique (peritonization of wound surfaces) and the avoidance of injury in drainage are essential.

In spite of its small capacity, the gall bladder serves as a pressure reservoir for the regulation of the biliary flow according to the physiological demands of the digestive organs. It acts also, however, as a secreting organ adding some element to the bile which is important for the chemical economy of the biliary flow and the action of the bile. According to the investigations of Helly, there must be a nervous adjunct regulation of the secretion and flow of bile in the form of a stimulant-conducting system which makes possible certain co-ordinating powers of the musculature of the intestinal and bile passages. This would explain the fact that diseases of the gall-bladder and the bile passages comparatively often produce irritative conditions in the vegetative nervous system. Animal experiments show that loss of the gall-bladder is not followed by any change in the metabolism, and in man no cases are known in which the extirpation of the diseased gall-bladder caused inconvenience. Under the effective compulsion of function and the changed pressure relationships in the bile tract due to the removal of the organ a true or false substitute gall-bladder may form under certain conditions, and if only partial removal of the gall-bladder is done and a blind sac is left at the neck of the gall-bladder this may again develop and dilate if overlooked stones or cicatrices in the cystic duct produce renewed back pressure. When a high section of the cystic duct is done a substitute gall-bladder may form under the influence of an injury to the wall, usually at the beginning of Heister's valve. Moreover, if the bile ducts are narrowed by cicatricial stenosis after cholecystectomy there may be formed at the juncture of the hepatic duct or at the common bile duct pocket-like protrusions which may be taken for substitute bladders, but are in reality cicatricial herniae.

The changes in the gastric secretion, the least of which are evidenced clinically by slight disturbances of acid function and the most severe of which are evidenced by definite achylia gastrica, are seen before as well as after the operation. The symptoms of dyspepsia, which persist after cholecystectomy as well as after the arrest of gall-bladder function by disease, are not to be attributed to a deficit in hydrochloric acid as long as a good total acidity and fermentative digestive function are present. The

main cause of postoperative gastric complaints are—in addition to abnormal relationships in the position and motility of the stomach—a diminution of the total acidity or achylia gastrica which is not compensated by vigorous intestinal digestion. Clinical investigations following operation show that, in spite of these changes in gastric secretion, only a small number of patients subjected to cholecystectomy complain of gastric disturbances even when they have demonstrable achylia. Accordingly, the body has sufficient recuperative power to replace changed or lost function. It is evident that with the returning rhythmical excretion of bile a compensation results in time.

The definite functional relationship between the biliary and gastric sections shows also that only truly diseased gall-bladders, which are the demonstrable source of permanent symptoms, should be extirpated. The disturbances of important physiological relationships produced by demonstrably diseased gall-bladders are influenced effectively only by the permanent removal of the center of stimulation and infection. Biliary colic may occur in the absence of stones; stasis of the gall-bladder also occurs. The sudden attacks of pain in the static gall-bladder without stones are caused by various conditions: ineffective evacuation colics of an over-filled gall-bladder which cease suddenly as soon as a part of the bile has run off; torsion colics with torsion of the pedicle of a wandering or a pendulous gall bladder; tension colics due to a sudden increase of the internal pressure and over-distention of the cystic wall or pressure from adjacent organs (a lymph node in the angle between the cystic and common bile ducts).

With the aid of forty-three instructive illustrations, the author discusses the causes and prevention of operative injuries of the deep bile passages. There is no other region of the body in which so many anatomical variations occur as at and near the region of the bile ducts. One of the chief dangers in biliary operations is the possibility of injuring the hepatic and common bile ducts. The author therefore emphasizes the importance of a strictly anatomical operative technique: (1) a sufficiently large and unobstructed field of operation; (2) adequate exposure of the common bile duct by an incision in the anterior leaf of the hepato-duodenal ligament; (3) the avoidance of injury of the venous vascular network on the choledochus, so that the field of operation is kept free from blood; (4) careful exposure of the ampulla of the gall-bladder; (5) an "anatomical" exposure of the cystic artery and of the cystic, hepatic, and common bile ducts by outward reflection of the right lobe of the liver and tension on the choledochus; (6) the ligation of the cystic artery directly at the gall-bladder; (7) the separate ligation of the cystic artery and the cystic duct; (8) the careful demonstration of evident anomalies of the hepatic duct on separating the gall-bladder from its bed; (9) the opening of the choledochus as far as possible from the duodenum

in order to avoid operative injuries of the vessels, and (10) an anatomical exposure and a direct attack on the vessels themselves, if possible beginning at the porta of the liver.

As far as permanent results are concerned, the simplest operative procedures have been the best up to the present time. Those most useful are: transverse suture of oval defects, circular end-to-end union with or without drainage of the hepatic duct, suturing after oblique freshening of the wound, the use of serosa-muscularis flaps from the stomach or duodenum, the use of the gall-bladder to cover the cholecystus, and the use of internal prostheses (rubber or galalith tubing) or a T-tube left in place for several weeks. Hemorrhages from the bed of the gall-bladder which occur when suturing is impossible may be arrested by tamponade, cauterization, or the suturing in of an absorbable pack. Injuries of the hepatic artery or portal vein are treated by suture of the vessel and reinforcement of the tube with peritoneal or fascial strips. In cases of threatened hemorrhage the hepato-duodenal ligament is compressed entire for half an hour (with constant control of the pulse, respiration, and blood pressure).

The Swiss statistics show that among the causes of death following gall-stone operations the complications caused by the disease far outweigh the direct operative injuries and sequelae. The mortality increases with the duration and the deep progress of the condition, the age of the patient, and the involvement of the liver, pancreas, and adjacent viscera. Among the operative injuries, operative peritonitis must be mentioned, the origin of which is varied, including loosening of the ligature on the cystic duct, overlooked foreign bodies, insufficient packing, manually spread infection, loose sutures, etc. Postoperative heart failure also plays an important part even in cases in which it could be assumed that the heart was capable of withstanding the operation. The predisposing factors seem to be latent cardiac and vascular diseases, too deep anaesthesia, long-continued low blood pressure, liver cell embolism of the right heart from operative pressure, injury of the liver, fat embolism of the cardiac vessels with associated injury of the heart muscle, absorption of toxins, and psychic conditions.

In order to strengthen the ability of the heart to withstand operation the author advises a tissue-sparing operative technique, care to remove all coagula and necrotic tissue in the inner wound bed, the exclusion of injurious vagus reflexes by the injection of novocaine into the hepato-duodenal ligament, rapid operating, control of the blood pressure during the operation, careful selection of the operation, and careful testing of the heart for latent insufficiency (as advised by Katzenstein and Varisco). Postoperative pneumonia is not rare; insufficiency of the liver, injuries due to acidosis (sudden loss of basic substances in the body), and cholæmic hemorrhages with associated disease of the liver and pancreas are important causes of

death. Hardly any other operation is attended with so many possibilities of danger as the attack on the bile passages. Henschen therefore justly demands that when a "harmless operation" is intended, the important pathologic-physiologic factors of safety be not neglected.

The article contains five tables and sixty-eight illustrations.
DUMONT (Z).

Willis, A. M.: "Ideal Cholecystotomy": A Valuable Procedure in Certain Cases of Cholelithiasis. *J. Am. M. Ass.*, 1922, LXXVIII, 942.

In the author's opinion cholecystostomy and cholecystectomy are performed too frequently.

Earlier in his experience Willis recognized simple cholecystitis rather infrequently. Of a series of 549 cases in which operation was performed prior to 1918 because of supposed gall-bladder disease, calculi were found in 86 per cent and non-calculous cholecystitis in only 14 per cent. In a series of 100 cases in which operation was performed during the last two years, stones were absent in 25 per cent. Ten of the latter cases (40 per cent) showed no pathologic changes.

In Willis' opinion cholecystotomy should be done when gall-stones are accidentally discovered at operation and in cases of suspected cholecystitis in which the opened gall-bladder appears normal.

Three points in the technique of special importance are: (1) the avoidance of unnecessary trauma to the gall-bladder; (2) protection of the adjacent peritoneum from contact with the concentrated and possibly infected bile; (3) tight closure. Gauze is packed around the gall-bladder to prevent soiling of the peritoneum with bile and the bile is removed as thoroughly as possible by means of a trocar thrust through the wall. The opening is enlarged, the irrigator-aspirator is introduced, and the gall-bladder is carefully irrigated with isotonic saline solution. The gall-bladder is then carefully inspected, internally and externally, and any calculi that may be present are removed.

It has been found that the use of a lens giving a magnification of ten diameters is of great assistance in the internal inspection as it brings out detail that could not be detected with the unaided eye.

In closing the gall-bladder incision, a small curved intestinal needle and No. 0 or No. 1 plain catgut are employed. The first line of sutures includes the muscular and submucous coats, but does not penetrate the mucosa or the visceral peritoneum. The edges of the peritoneal coat of the gall-bladder are brought together by a stitch which occasionally dips down to include the muscular coat, thus obliterating dead space. Three illustrations are presented.

CARL R. STEINKER, M.D.

Eha, G. E.: A Case of Congenital Pancreatic Cyst. *J. Am. M. Ass.*, 1922, LXXVIII, 1234.

The author's patient was a female infant 5 months old, who weighed 5 lb., 5 oz. at birth, and 12 lb., 10 oz. at 5 months of age.

The child was breast fed and apparently normal in every respect except for the presence of a round, movable mass about the size of a small orange in the left hypochondrium. There were no symptoms. The Wassermann test and urinalysis were negative.

Operation through the left rectus showed the mass to be a cyst attached to the tail of the pancreas by a broad base. The cyst was removed and the abdomen closed by through-and-through silkworm gut sutures.

The specimen weighed 1½ oz. and consisted of two sacs, the larger measuring 7¼ in. and the smaller 2¾ in. in circumference. The two sacs, though attached, were separated by a firm wall. The lining was smooth. The contents were clear, watery, and alkaline, and on being heated did not coagulate. Microscopic examination revealed fibrous tissue only. There was no infiltration of cells and no lining epithelium. The diagnosis was "congenital cyst."

V. G. BURDEN, M.D.

Primrose, A.: Pancreatic Cysts and Pseudocysts; Report of a Case of Total Extirpation by an Extraperitoneal Method. *Surg., Gynec. & Obst.*, 1922, xxxiv, 431.

Primrose gives the classification of pancreatic cysts as suggested by Robson and Moynihan in 1903 with the addition of the dermoid described by Judd.

The case reported was that of a woman 32 years of age who was delivered of a child at full term on January 28, 1912. Prior to delivery the patient was very large and a twin pregnancy was suspected. After delivery a large cyst, thought to be ovarian in origin, was found filling the abdomen.

Operation showed the cyst to be covered by the posterior parietal peritoneum. The posterior layer of peritoneum was incised and sutured to the anterior parietal peritoneum by continuous catgut sutures. The cyst was enucleated as far as possible and then aspirated, 5 liters of pale, chocolate-colored fluid, the consistency of pea soup, being drawn off. The enucleation of the cyst was then completed. Its base was found at the tail of the pancreas. Following the insertion of a drainage tube, the abdomen was closed. Good recovery followed.

Two years and nine months later the patient was delivered of another baby. Nine years after the operation she is entirely well, and no weakness has developed in the abdominal wall.

CARE R. STEINKE, M.D.

Bartlett, F. H.: The Indications for the Removal of the Spleen in Infants and Children. *Am. J. Dis. Child.*, 1922, xliii, 283.

Bartlett attempted to collect the reports of all previous splenectomies on children under 14 years of age. Fifty-one cases are tabulated as follows: von Jaksch's disease, five; splenic anemia and Banti's disease, twenty; Gaucher's disease, four; hæmolytic jaundice, fifteen; tuberculosis, one; septic splenomegaly, one; unclassified cases, five.

In addition, Bartlett reports three cases, two of Banti's disease, and one of Gaucher's disease. These three cases are fully presented and discussed at length. Bartlett believes that Gaucher's disease may be due to the same underlying process as Banti's disease. The onset of the condition in the cases of Banti's disease probably occurred at the ages of 3 months and 3½ years. One patient was reported much improved six months after operation, and one was discharged from the hospital improved. The patient with Gaucher's disease died following the operation.

The following conclusions are drawn:

1. At present it may be said that radium treatment has been of no avail in Banti's disease.
2. The results of blood transfusion are of importance in determining whether a splenectomy should be done or not. If an infant or child has an enlarged spleen with a blood picture of secondary anemia and evidence of blood destruction, and if he receives two or more blood transfusions at intervals of a month without improvement in the blood condition, such an infant or child becomes the potential subject of a splenectomy.
3. Splenectomy is contra-indicated in leukæmia, syphilis, tuberculosis, and malaria.
4. Conditions in which splenectomy may give relief or effect a cure are more frequent in the first years of life than is generally believed.
5. It is desirable to remove the spleen in the early stages of the pathologic process for which splenectomy is indicated.
6. The condition most frequently cured by splenectomy is hæmolytic jaundice.
7. Banti's disease and Gaucher's disease represent pathologic processes in which splenectomy may give relief of symptoms and prolong life.
8. Von Jaksch's disease is probably not an independent condition.
9. Indications for the removal of the spleen depend on certain criteria—not on the making of a definite diagnosis. These criteria are splenomegaly, secondary anemia, and the failure of repeated blood transfusions to determine an improvement in the anemia and general condition.

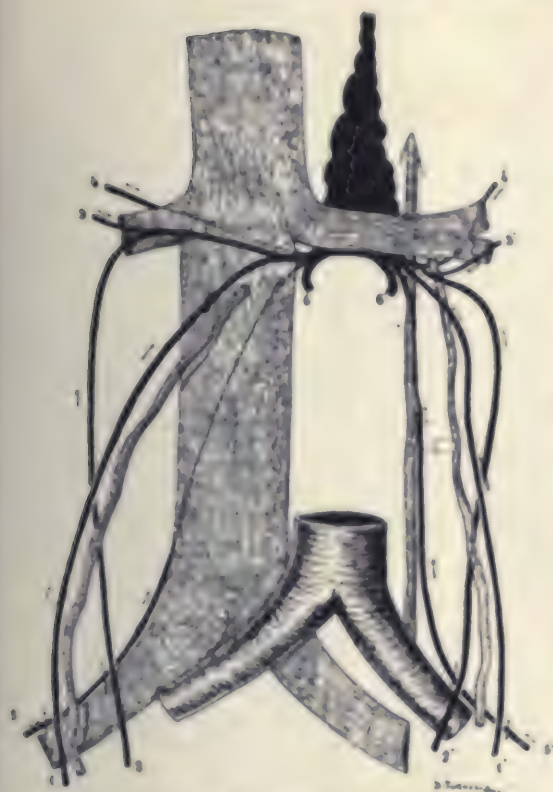
O. S. PROCTOR, M.D.

MISCELLANEOUS

Descomps, P., and Turnesco, D.: The Important Abdominal Lymph Currents (*Les grands courants lymphatiques de l'abdomen*). *Arch. franco-belges de chir.*, 1922, xxv, 298.

In the abdomen there are four important bilateral lymph currents symmetrically disposed with regard to the median line, viz., the current of the lower limb, the genital current, the urinary current, and the intestinal current.

The current of the lower limb runs first with the external iliac vein, then with the common iliac vein, and thence along the lumbar wall in front of the psoas.



Schematic drawing of the course of the large lymphatic currents of the abdomen in their relation to the two cavæ systems: the right, voluminous, is represented in the adult by the vena cava inferior; the left, reduced to a vein of small caliber, the ascending lumbar vein. Urinary currents on the right side; (1) right genital current; (2) inferior current; (3) anterior current; (4) posterior current; (5) current of the right leg; (6) end of right intestinal current. 1', 2', 3', 4', 5', and 6': same currents on left side.

The genital current accompanies the internal spermatic veins.

The urinary current is represented by several confluent vessels some of which are in front and others behind the renal vein. The anterior confluent vessels are in front of the inferior vena cava or its left homologue, and the posterior confluent vessels pass behind the vena cava. The urinary current is therefore double, one part pre-venous and the other part retro-venous.

The intestinal current is represented by two main collecting trunks, one on the right, the confluent of the stomach, colon, and small intestine, the other on the left, the gastro-spleno-colic confluent.

The confluent of the stomach, colon, and small intestine comprises three primary trunks: (1) a gastric trunk; (2) a colic trunk; (3) a small-intestine trunk. The gastro-spleno-colic confluent is formed

by the convergence behind the pancreas of: (1) a gastric trunk; (2) a splenic trunk; and (3) a colic trunk.

W. A. BRENNAN.

Churchill, A.: Drainage in Abdominal Emergencies. *Brit. M. J.*, 1922, i, 591.

Early diagnosis is important in acute abdominal crises. Responsibility for the heavy death rate is placed on the medical attendant who is first called to see the case. The proper time for intervention, the site of the incision, and the mode of drainage in abdominal emergencies are subjects of controversy.

The author gives the following analysis of the methods employed and the results in seventy-five cases treated by limited interference. The majority of the patients reached the hospital several days after the onset of the symptoms.

The incision varied with the condition present. In doubtful cases a right paramedian incision with retraction of the rectus outward was made. In gastric or duodenal perforations the same incision was made above the umbilicus, and in general peritonitis it was made below the umbilicus. Generally in acute appendicitis a McBurney gridiron incision was employed, but Battle's incision was used twice, and in a few cases an oblique incision through the thickness of the abdominal wall which gives good exposure but favors hernia.

Drainage was used only in the presence of free pus or thick purulent fluid. Fluid was not swabbed and the peritoneal cavity was not irrigated. Only one drainage tube was employed and usually this was inserted in Douglas' pouch. After the operation the patient was placed in the Fowler position.

	Total	Recoveries	No. Deaths	Per cent
Acute appendicitis without peritonitis	22	22	0	0.0
Acute appendicitis with pelvic peritonitis	29	27	2	6.8
Acute appendicitis with general peritonitis	5	4	1	20.0
Acute appendicitis with localized abscess	14	14	0	0.0
Perforation of stomach or duodenum	5	5	0	0.0
Total	75	72	3	4.0

In four of fourteen cases of localized abscess the appendix was not removed. An appendectomy was not done if it was difficult to locate the appendix and the bowel was friable.

The complications which developed were pneumonia, pelvic abscess, fecal fistula, subphrenic abscess, and hernia, in one case each.

The advantages of limited drainage are that shock is diminished as time is saved and the abdominal walls are not interfered with to the same extent, the after-treatment is less painful, fecal fistula results less frequently (fistulae are caused by ulceration of the bowel due to tubes), and intestinal obstruction is prevented as adhesions are not apt to form.

The swabbing out of fluid from the general peritoneal cavity and irrigation with saline or antiseptic solution may disseminate septic material and traumatize the inflamed peritoneum. A drainage tube often acts as a focus of infection, irritating the peritoneum and rendering it less capable of self-defense. In several cases with free turbid fluid in the pelvis closure was effected without drainage and was followed by primary healing. Fluid within the abdominal cavity which does not become absorbed will find its way out easily through the abdominal wound.

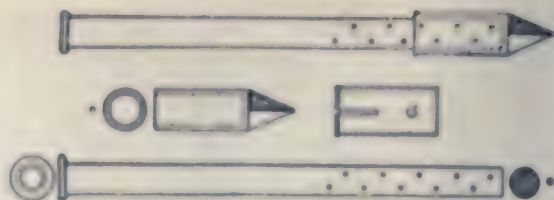
The author concludes that more restricted abdominal drainage involves no additional risks and has advantages which constitute an improvement in the surgery of emergency conditions.

WALTER C. BURKET, M.D.

Robertson, G.: Drainage of the Lower Abdomen.

Practitioner, 1923, CVII, 295.

For cases of free fluid or seropurulent exudate within the abdomen the author advises the use of a suprapubic drain to be put into place after the lesion has been exposed but before the visceral dis-



case is dealt with. When this is done there is less absorption of toxins by the peritoneum when it is traumatized by the operation.

Robertson uses a glass tube, over the end of which a trocar guide has been slipped (See fig.) A small incision is made through the skin and the trocar guide thrust into the abdominal wall. The glass tube is introduced into the guide and pressed down firmly through the abdominal wall with the fingers of the left hand carrying a piece of gauze within the abdomen to receive it.

The guide is then removed through the incision. The tube is removed at the end of the operation or in a few hours.

WILLIAM J. PICKETT, M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Schubert, A.: The Causes of Congenital Torticollis (Die Ursachen der angeborenen Schiefhals-erkrankung). *Deutsche Zeitschr. f. Chir.*, 1921, CLXVII, 32.

After a review of twenty cases of torticollis treated surgically the author comes to the conclusion that the congenital muscular wry-neck is a distinct entity. The most prominent characteristics of the condition are: (1) degeneration of the sternocleidomastoid muscle which ultimately extends to other muscles; (2) asymmetry of the skull out of proportion to the shortening of the sternocleidomastoid muscle; (3) the hereditary nature of the condition and its association with other hereditary malformations; and (4) the marked power of regeneration of the resected muscle through the formation of cicatricial tissue.

An extra-uterine origin can be excluded, and against the theory ascribing the condition to intra-uterine pressure is its hereditary character and association with other malformations which could not be due to uterine pressure. A constricted intra-uterine position is not to be regarded necessarily as a pathologic phenomenon; it is pathologic only when it persists. The assumption of a contracture of the sternocleidomastoid muscle cannot explain the later false regeneration of the extirpated muscle and is excluded also by the degeneration of the neighboring muscles. The asymmetry of the skull is due not only to the contracted muscle but also to a centrally produced disturbance of growth; it

does not disappear completely after extirpation of the diseased muscle. A primary disturbance of the central nervous system is to be assumed as this would explain all of the symptoms.

The author advises surgical treatment as early as possible, even in the first weeks of life, when it is well borne. The technique recommended is that of Mikulicz: resection of both the lower tendinous attachments with the lower third of the diseased muscle and all cicatrices and tendons that are under tension. Complete radical extirpation of the cicatricial muscle up to its insertion in the mastoid process with removal of the spinal accessory nerve was done only once in a very severe case; the trapezius did not become paralyzed and the result was very good.

CHRYTE (Z).

FRACTURES AND DISLOCATIONS

McNealy, R. W.: Dislocations and Fracture-Dislocation Occurring at the Acromio-Clavicular Articulation. *Illinois M. J.*, 1922, XLII, 202.

Dislocations and fractures of the acromio-clavicular articulation are most common in middle life, especially in laborers. True simple dislocations are most common in younger persons while the fracture-dislocations are most frequent in older persons.

The fractures are usually of the tearing variety due to the fact that the ligamentous attachments carry with them fragments of bone detached at the points of their insertion. The violence is usually applied directly to the outer end of the scapula either by a fall or blow. Rarely it is produced indirectly by muscular exertion.

In subluxations, which are comparatively frequent, the capsular ligament is torn. Complete luxations are associated with marked and typical shoulder deformities. The capsular ligament is torn across and the acromion process of the scapula inserts itself beneath the outer end of the scapula because the trapezoid ligament is torn loose from the trapezoid ridge of the clavicle. The joint meniscus is carried along with one or the other joint surface and may insinuate itself between the bones, rendering reduction very difficult. In some cases the torn ligament ends may curl back into the joint, making complete reduction impossible.

In fracture-dislocations we have the same clinical picture as far as deformity is concerned and, in addition, fragments of either the clavicle or the scapula are attached to the torn ligaments.

Injury to the brachial plexus as a result of stretching with consequent paresis or paralysis has been a troublesome complication in some of the cases.

The deformity is produced by the riding of the outer end of the clavicle above the acromion process of the scapula. The shoulder of the affected side droops. In the fracture cases crepitus can often be elicited.

Subluxations give little cause for anxiety except when they are complicated by other lesions. A Sayre or Stimson figure-of-8 dressing with a firm pad over the acromio-clavicular joint will give very good results. Bevan recommends a molded felt splint applied to the forearm and a Martin bandage passing under the flexed arm over the shoulder with a pad over the site of dislocation. A sling supports the elbow and forearm.

In luxation or complete dislocation difficulties are met, first, in securing proper reduction, and second, in maintaining the reduction after it has been effected. The same is true in the fracture-dislocations.

The accessibility of the acromio-clavicular joint and its comparative freedom from serious consequences following infection seem to favor operative intervention when complete reduction cannot be maintained by retention appliances.

A number of methods have been employed with variable degrees of success in these cases.

The Parham-Martin band has the following disadvantages: (1) the opening in the two fragments must be of considerable size to admit the band; (2) the band is large for such frail structures; (3) tightening the band is apt to cause splitting of the bones; (4) the removal of the band requires considerable exposure and operative effort.

Ryerson has described a very ingenious method of holding the bones in apposition by means of a rolled cord of fascia lata. Though he has found this method quite successful, it is difficult to secure fascia tightly enough to prevent some slipping of opposed surfaces, and the advisability of the use of such a bulk of tissue in this subcutaneous location is questionable.

Plating and nailing too greatly inhibit motion. Kangaroo tendon and phospho-bronze wire are not as suitable as piano wire.

McNealy is particularly well pleased with the following technique of wiring:

A crescentic incision about $2\frac{1}{2}$ in. long is made about $\frac{1}{2}$ in. beyond the outer end of the displaced clavicle, with the center of its concavity opposite the most marked elevation produced by the acromial end of the clavicle. The skin incision is deepened to the capsule of the acromio-clavicular joint. An attempt is made to avoid blunt dissection and hand contact.

The joint having been exposed, all torn tags of the ligaments are carefully clipped away and the joint meniscus and small fragments of the clavicle or scapula are excised. If difficulty is encountered in retaining the scapula on a level with the clavicle, the upper surface of the acromial end of the clavicle is beveled so that when the two bones are closely approximated the clavicle prevents the scapula from slipping under its outer end.

Holes are drilled in the outer end of the clavicle about $\frac{1}{2}$ in. apart, and about the same distance from the articular surface of the bone. Two holes are drilled also in the acromial end of the scapula, usually about $\frac{1}{4}$ in. apart and about the same distance from the articular facet. Through these holes strong piano wire is passed. In tightening the wires it is well to manipulate the arm first to produce good reduction and then gradually tighten the wires alternately. After the wiring is completed three or four interrupted sutures are placed in the ligaments and fascia to cover the joint cavity.

The skin is closed with No. 1 catgut and a small fluff is fixed with adhesive over the suture line.

A Velpeau dressing is applied with the arm flexed and the palm of the injured side near the opposite shoulder. It is well to pad the elbow and the hand thoroughly, preferably with felt. A very light plaster-of-Paris dressing is placed over the Velpeau dressing to aid in the immobilization of the injured part and prevent the loosening and slipping of the gauze.

At the end of five or six weeks the cast is removed and the shoulder examined. If the X-ray findings are favorable, the wires are removed under local anæsthesia. The incision used to remove the wires is closed with one stitch. Light exercise may be instituted immediately.

Paschoud, H.: An Apparatus for the Treatment of Fractures of the Humerus (*Appareil pour le traitement des fractures de l'humérus*). *Schweiz. med. Wchschr.*, 1921, li, 1205.

The new apparatus described can be used for fractures of both the right and the left sides by simply turning it. It consists of a bent metal plate which is padded and fastened to the chest by a sort of girdle and shoulder straps. The flexed forearm is made to rest in a trough-like splint connected with the chest girdle by the interposition of a laterally movable gliding arrangement by means of five supports which are made on the plan of the winding rods of Hackenbruch's traction clamp, can be

elongated or shortened as desired, and are movably attached to the breast plate and to the support of the forearm so that the forearm can assume any position desired. By screwing the jointed connections, the apparatus may be held in the desired position.

The special advantage of this apparatus is that the upper arm and the axilla remain free. The treatment of complicated fractures is thereby simplified. By elongating the supports with a screw arrangement, the upper arm can be extended in every direction. The great advantage of this apparatus is that it makes possible a completely ambulatory treatment of fractures.

BRUNNER (Z).

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Bum, A.: Mobilization in the Surgery of the Extremities (Die Mobilisierung in der Extremitätenchirurgie). *Mod. Klin.*, 1921, xvii, 1571.

Function following fractures and luxations of the extremities is endangered by inactivity of the limb leading to ankylosis and muscular atrophy. The proper coaptation of the fractured ends is important. The cause of impairment of function is usually routine treatment and especially protracted and unsuitable fixation. Immobilization must be limited; the muscles should be activated early. Absolute immobility is unnecessary and in many cases, as in tearing fractures of the radius and fibula and impacted fractures, it is superfluous. In certain fractures, as in those of the olecranon fixed in extension, it is dangerous. The circular plaster cast should not be used even for a short time as it leads to ischaemic disturbances and ankylosis. Easily removable splints are better, especially coaptation plaster splints. Massage of the fractured region (palpatory stroking) and careful motion should be begun during the development of the callus.

Immediate mobilization is indicated only in very definite groups of fractures. The indication is influenced by: (1) the location of the injury; (2) the nature of the fracture and the position of the fragments; and (3) the patient's age. Some cases require dispensary treatment and some require operative replacement. The open operation has the advantage that functional treatment may be instituted very early. Bier's hyperæmia favors the formation of callus and extension increases the blood supply to the parts. Active movement should be begun during the time of extension. Splints are of value while the callus is soft; plaster casts are useless. Early weight-bearing is a functional stimulant to the formation of callus.

Early mobilization is indicated in all cases of joint fracture in which fibrous adhesions are suspected, such as transverse fractures of the olecranon and patella in which the lateral extension apparatus is still in place, subcapital fractures of the humerus, fractures of the head of the radius and of the carpal bones, impacted fractures of the neck of the femur,

supra-malleolar fractures of the fibula, and most subperiosteal fractures of the bones of children. Luxations should be mobilized after five to ten days of immobilization.

Röntgenography is of greater value in the control of the replacement of the fragments than in the diagnosis.

SCHUBERT (Z).

Zahradnický: The Treatment of Injuries of the Knee Joint (Die Behandlung der Kniegelenksverletzungen). *Rothschütz u. Chir. u. Gynäk.*, 1921, i, 11, 52.

The author had occasion to treat 225 cases of gunshot injuries of the knee joint; also six cases of injury due to sharp instruments and three cases of injury due to dull instruments. For the prevention of infection of the injured joint, aseptic and then antiseptic dressings were applied, the knee was immobilized, and antiseptic solutions were injected. In most cases a 3 per cent solution of phenol was used, but a 10 per cent emulsion of iodoform ether and the Chlumsky solution recommended by Payr were also employed. Foci of infection were always removed primarily.

In infected injuries the wounds of the soft parts were laid wide open and as far as possible foreign bodies were removed from the soft parts, the joint body, and the joint cavity. The joint cavity was then irrigated with antiseptic solutions and closed by suture around a drain.

If these measures were insufficient, arthrotomy with drainage or the procedure of Payr was used. In some cases even this treatment was useless, an atypical or typical resection or amputation being necessary. The Bier treatment is of value only in early cases: rhythmical hyperæmia also does not produce the desired results. Willems' method, in which passive motion is begun at the very beginning, whether infection is present or not, gave very good results in the one case in which it was used.

Of the 225 gunshot injuries, 174 were perforative (170 were caused by bullets and four by shrapnel) and fifty-one were non-perforative (twenty-two due to bullets and twenty-nine to shrapnel). Of the 174 perforated joints, forty-nine were infected, thirty-six required operation, and thirteen healed without operation. In seven cases the patella was fractured, in seven cases both knee joints were injured, and in one case there was an aneurism of the popliteal artery. In eighteen cases the knee joint was resected. Five of these patients died, two in spite of amputation. In the fifty-one cases of non-perforative wounds there was one death, that of a patient injured by shrapnel. Ten wounds due to shrapnel became suppurative. In eleven cases, arthrotomy, extraction of the projectile, and suture were done, and in seven cases, an arthrotomy, extraction of the projectile, and drainage of the joint. In fourteen cases there was a simultaneous injury of the bone. One of two patients subjected to resection of the knee joint and one of two subjected to amputation died. Of the twenty-two patients with

non-perforative wounds due to bullets all recovered, ten without operation. In one case amputation was necessary because of threatening sepsis. The nine cases treated for injuries of the knee joint acquired in civil life included six cases of injury caused by sharp instruments and three cases of injury caused by a dull force. In five of the six cases of injury due to sharp instruments the knee joint was drained. In three of these cases wide re-opening was necessary; one patient died from sepsis.

KINDL (Z).

Hohlbaum, J.: Experiences and Results Following Operative Mobilization of Ankylosed Static Weight-Bearing Joints (Erfahrungen und Erfolge nach blutiger Mobilisierung versteifter statisch belasteter Gelenke), *Arch. f. klin. Chir.*, 1921, CXVII, 647.

The author reports on the subsequent examinations of mobilized joint ankyloses of the lower extremity treated in the Payr Clinic. The report includes total arthroplasties on eighty-five knee joints, twenty hip joints, and five ankle joints. In the knee cases the operation was successful in 78 per cent and a failure in 22 per cent. Twenty-five cases showed very good results; twenty-three, good results; and fifteen, unsatisfactory results. In sixteen cases the ankylosis recurred; in one, a Schlotter joint resulted; and in another, death. In the hip cases the results were very good in six and good in five. In six cases the ankylosis recurred. Five ankle joints showed a very good result. The cases considered as showing very good results are those in which steady firmness with complete or almost complete painlessness on use and active flexibility of at least 100 degrees in the knee and 90 degrees in the hip joint, and a range of motion of 80 to 110 degrees in the foot were obtained. The result is considered good when a similar range of motion was obtained but the steadiness was uncertain and pain was present occasionally. The result was considered insufficient when there was insufficient firmness, the joint was loose, and the range of motion was less than 60 degrees.

At the present time very little is known regarding the cause of the pain; the continuously acting causes of the ankylosis doubtless play some part. Pain due to the formation of osteophytes is localized chiefly in the soft parts. Joints with much irregularity of form may be painless. The best results as regards the ankylosis are obtained in gonorrheal joints. The unfavorable results are seen in the metastatic joint suppurations following a septic disease. In ankylosis due to rheumatism the results are not especially favorable. In injuries, especially gunshot injuries, the results are better. In tuberculosis, in which the main danger of failure lies always in the flaring up of a latent tuberculous focus, the results are fairly good provided such a flare-up does not occur. The author believes that the poor results in septic and rheumatic ankyloses are due mainly to

the functional failure of the musculature resulting from severe toxic injury. In tuberculosis, gonorrhoea, and non-septic injuries the connective tissue and musculature do not appear to be injured so seriously. Payr successfully mobilized joints a second and third time after failure of the first mobilization.

The author advises against extirpation of the patella unless this is absolutely necessary, as the presence of the patella is of importance for the maintenance of muscular balance. Lateral loose motion may be prevented by the formation of lateral ligaments from strips of fascia. Particularly in ankyloses due to gunshot wounds, preliminary operations, such as excision of cicatrices, skin transplantation, and plastics on the tendons and muscles, were necessary. In the more chronic cases there was no tendency to the formation of inflammatory exudates or swelling of the joint. Because of the latent infection, the mobilization should be deferred at least one year after the primary infection has subsided; the longer the interval the better. Comparative measurements of the temperature and sensitiveness to pressure and massage are of importance for the discovery of a latent infection. Joints become ankylosed from lack of energy even in the absence of infection, especially in the fifth to the sixth week, at which time mobilized joints enter the hyperplastic stage. The swelling and tenderness of this stage completely disappear after a few weeks. Schlotter joints are avoided by careful technique and sparing resection.

Complete function of the mobilized joint is to be expected only after two years. Therefore this procedure is not adaptable for persons who are not able to devote sufficient time to the after-treatment. In bilateral ankylosis, unilateral mobilization is indicated.

The after-treatment is as follows:

A splint is worn for two days. Extension in slight semiflexion is begun fourteen days after the operation. Mobilization is begun with flexion and massage. Active motion should be begun as soon as possible. Forced flexing motions under anaesthesia should be avoided. The patient may be allowed to get up five to six weeks after the operation, using an ambulatory splint, but the latter should not be employed too long. The hospital treatment usually lasts eight weeks; the after-treatment requires from one-half to one year.

Experiences with the hip joint are in general the same as those with the knee. The functional capacity of the gluteal muscles which, like that of the quadriceps, is sometimes restored quite late, determines the sufficient fixation of the femur against the pelvis. The pain during the period of after-treatment is usually less than that in the knee. The formation of a new head and acetabulum at the normal site is preferable to the para-articular saddle-joint formation of Payr.

The mobilization of the ankle is simple and gives the most certain results. STAMMLER (Z).

SURGERY OF THE SPINAL COLUMN AND CORD

Cotfield, R. R.: Hypertrophic Bone Changes in Tuberculous Spondylitis. *J. Bone & Joint Surg.*, 1922, 4, A, 17, 237.

A study of 100 consecutive cases of tuberculous spondylitis made by the author disclosed ten cases in which hypertrophic bone changes were present during the active stage of the disease. Five were mono-articular and five showed two or more attempts at bony bridging. In six of the ten cases a cold abscess was present, but in only one was the abscess drained before the X-ray examination. Aspiration and drainage of the abscesses yielded typical tuberculous pus. In two cases tubercle bacilli were found and guinea-pig inoculations were positive.

All of the cases in which hypertrophic bone changes were found were those of patients over 20 years of age. The fact that these changes were limited to the lower spine seemed to indicate that their function was to limit motion and give added support to that portion of the spine which is most mobile and least protected. At autopsy in one case the entire lumbar spine was found to be rigid, hypertrophic bone changes caused ankylosis of the vertebrae from the twelfth dorsal to the fourth lumbar. The manner in which the new bone had formed along the course of the fibers of the anterior and lateral spinal ligaments suggested that the deposit had occurred within the ligaments. The body of the second lumbar vertebra showed extensive degeneration, but not collapse. The author's conclusions are:

Tuberculous spondylitis shows a natural attempt toward spinal fixation through hypertrophic bone changes in at least 10 per cent of the cases.

Bony ankylosis of the spine may occur in tuberculous spondylitis without the presence of mixed infection.

It is possible that many cases of spondylitis diagnosed as mono-articular osteo-arthritis are of tuberculous origin. This condition has been found only in adults.

Since spinal fixation is considered the rational treatment for tuberculous spondylitis, and since bony fixation occurs naturally in a certain number of cases, it seems justifiable to recommend internal fixation by bone grafting or spinal fusion as a rational aid to recovery, especially in the cases of adults.

The histories of the ten cases are given in full and illustrated by four cuts. JOHN W. POWERS, M.D.

Moore, B. H.: A Case of Spontaneous Fracture of the Transverse Process of a Lumbar Vertebra Due to Tuberculosis. *J. Bone & Joint Surg.*, 1922, 4, A, 17, 249.

The case reported was that of a young negro who, after performing some light work, experienced a sudden and severe pain in the left lumbar region

extending into the thigh. At first the pain was so severe that he was unable to walk, but gradually it subsided to a dull ache.

Four months after the first symptoms a deeply fluctuating swelling was found in the left lumbar region. By aspiration thin grayish pus was removed. Later the abscess was opened and drained. The transverse process was found lying free in the abscess cavity. Subsequently the patient developed military tuberculosis and died.

Besides marked military tuberculosis of all the internal organs, autopsy revealed considerable necrosis of the bodies of the third and fourth lumbar vertebrae. The first and second showed the same process in an early stage.

The author believes the primary foci in this case was in the affected transverse process since this lesion was much more advanced than that in the vertebral bodies. JOHN W. POWERS, M.D.

Hanausek, J.: The Treatment of Scoliosis by Plaster Jackets (*Contribution au traitement de la scoliose par les corsets plâtrés*). *Rev. d'orthop.*, 1922, XXIX, 127.

For rotation of the scoliotic thorax the author employs a plaster corset cut horizontally, the two parts of which are firmly joined together behind by a hinge with a vertical axis.

In the application of this corset Hanausek does not select any special position of the spine (as Abbot does) but leaves the patient in the natural standing position.



Fig. 1. The daily variation in the corrective pressure by means of small rings, one fixed to the upper segment, the other to the lower segment, is maintained by a band which is tied after the change is made.

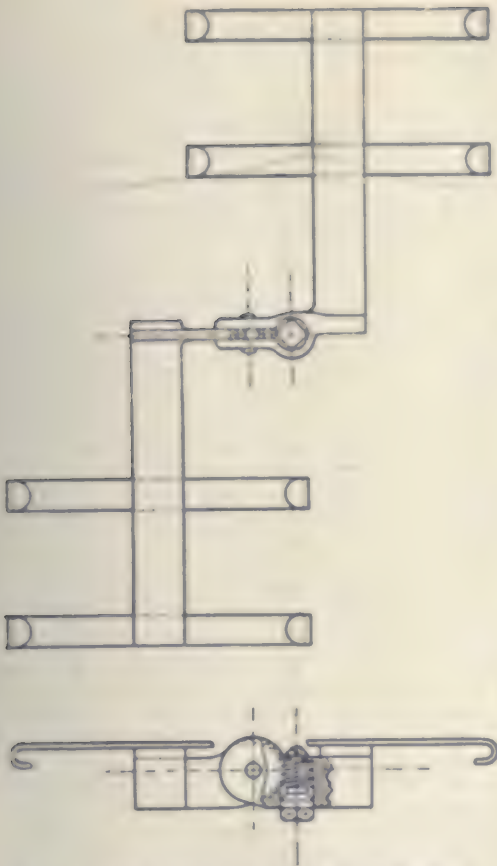


Fig. 2. A new hinge which can be used in the daily correction instead of the apparatus shown in Fig. 1. The hinge is turned by a screw and key. The daily manipulation with this hinge is more simple than that by levers of wood.

The corset exerts pressure on the posterior prominence of the ribs but does not press upon the lateral prominence. The pressure is increased from day to day by means of wooden levers or a screw arrangement mounted on the hinge.

By this method the author succeeded in obtaining a remarkable correction in a case of severe mid-

dorsal scoliosis with marked rotation of the thorax. No conclusion can be drawn as yet, however, regarding the permanence of the results.

Further work on the method is still necessary; a special endeavor must be made to obtain over-correction of the primary curve and correction of the secondary curve.

W. A. BRENNAN.

Von Lichtenberg, A.: The Clinical Differentiation of Incontinence in Lumbosacral Spina Bifida Occulta and Its Operative Treatment (Die klinische Abgrenzung des Krankheitsbildes der Inkontinenz bei der Spina bifida occulta lumbosacralis und ihre operative Behandlung). *Ztschr. f. urol. Chir.*, 1921, VI, 271.

On the basis of two of his own cases, of which one was operated upon successfully, two cases operated upon by Katzenstein in 1901, and the anatomical findings in a series of cases, Lichtenberg differentiates the special disease picture of sacral incontinence from other types of incontinence. An adhesion between the spinal cord and the skin is usually found which probably causes traction and pressure upon the spinal cord and the nerve roots.

The changes in the bladder function are due possibly to a relative detrusor weakness in addition to hypertonia and paralysis of the sphincter. There may be also hypertrophy of the bladder wall, the formation of trabeculae and diverticula, dilatation of the ureter, and occasionally of the renal pelvis, as the result of the back-pressure, and finally contracted kidney. The history usually shows a free interval between a previously existing incontinence and the incontinence appearing about the tenth year of life. There is nocturnal and diurnal enuresis, but spontaneous micturition may occur; residual urine is demonstrable. In addition, slight albuminuria, pallor, pain in the lumbar region, and finally skin changes over the palpable cleft and the covered or gaping anus typical of spina bifida occulta are noted.

The prognosis is poor, the ascending pyelonephritis usually ending fatally. Timely operative interference, separation of the adhesions between the dura and the edges of the cleft, and transplantation of a tibial graft may result in a prompt cure and rapid improvement of the general condition as in one of the author's cases.

WEXBERG (Z).

SURGERY OF THE NERVOUS SYSTEM

Jonnesco, T.: Resection of the Cervicothoracic Sympathetic Nerve (La résection du sympathique cervico-thoracique). *Presse mée. Par.*, 1922, XXX, 351.

The surgery of the cervical sympathetic nerve has come into prominence only since 1896 when it was first used in the treatment of exophthalmic goiter. It has been tried also in cases of epilepsy, migraine, etc. With the exception of glaucoma,

in which removal of the superior cervical ganglion appeared sufficient to bring about intra-ocular changes, total resection of the cervicothoracic nerve is the only operation indicated in diseases due to disturbances of the intracranial circulation and the cranial nerves, tachycardia, or suppression of the cardio-aortic reflex in angina pectoris. This view Jonnesco supports by a number of arguments based particularly on the physiological findings of



Detachment of the superior cervical ganglion.

Frank. He is convinced that only total resection blocks the centrifugal vasomotor routes and the centripetal reflex route by which the symptoms of Basedow's disease are produced. In this operation not only the centrifugal nerves but also the sensory nerves connecting the thoracic organs with the nerve centers are sectioned, and as these nerves are connected with the nerve centers by numerous ramifications, total ablation of the cervical and superior thoracic sympathetic nerve is called for if their interruption is desired.

Jonnesco gives a detailed and well-illustrated description of the technique. Spinal anesthesia is employed. The incision begins behind the posterior border of the apex of the mastoid process and runs along the posterior edge of the sternocleidomastoid muscle to the clavicle. The jugular vein and the branches of the superficial cervical plexus are ligated and cut. In the second step of the operation the posterior edge of the sternocleidomastoid muscle

is dissected. The third step consists in the isolation of the vasculo-nerve mass by inserting the index finger between the mass and the vertical plane and lifting the mass up. In the fourth step the sympathetic trunk is isolated. This must be differentiated from the phrenic nerve and the descending branch of the hypoglossal and pneumogastric nerves. Landmarks for guidance will be found in the superior cervical ganglion at the upper extremity of the operative field and in Chassaignac's tubercle in the lower extremity.

The fifth step in the operative procedure consists of the complete detachment and resection of the superior cervical ganglion. The sympathetic cord is held with forceps and freed as far as the lower extremity of the superior cervical ganglion. The ganglion is then isolated and cut away with scissors from the fusiform mass with which it is connected at its extremities. In order to obtain the ganglion in its entirety Jonnesco seizes it with a strong haemostatic forceps as close to its upper extremity as possible and detaches it from its cranial attachments by traction.

The sixth step of the operation consists of the liberation of the inferior thyroid artery. The seventh step is the liberation of the cervicothoracic ganglionic mass, consisting of the inferior cervical ganglion, the first thoracic ganglion, and sometimes an intermediary ganglion situated on the antero-internal part of the vertebral artery. The arterial and venous trunks surrounding the ganglionic mass render access to it very difficult. The mass is situated deep in the thorax and protected by the scalenus on the outside, the clavicle in front, and the trachea and oesophagus on the inside. The aponeurotic sheath of the sympathetic nerve is covered by the fibrocellular membrane which has been termed the cervicothoracic diaphragm. The last step of the operation is the closure of the wound without drainage by means of Michel clips and without deep muscular or aponeurotic sutures.

Jonnesco states that this total resection is necessary when the sympathetic nerve is resected in the treatment of epilepsy or exophthalmic goiter.

W. A. BRENNAN.

MISCELLANEOUS

CLINICAL ENTITIES — GENERAL PHYSIOLOGICAL CONDITIONS

Goormaghtigh, N.: Parthogenesis and Cancer (*Parthogenèse et cancer*, Arch. méd. belge, 1932, 100, 97).

Embryological, histological, and anatomic-pathological findings show that in cancer a parthogenetic etiology is possible, and in teratomata and embryomata of the ovary even probable. It is possible also for embryomata situated outside the ovary if the theory of primarily migratory gonocytes is correct, as well as for extra-uterine chorio-epi-

thelioma. A parthogenetic origin of non-organic tumors has little support.

Malformations and monsters can be created by experimental parthogenesis. The employment of chemical parthogenetic agents has caused malignant non-organic proliferation in the salamander. The same agents applied to mammals have never provoked a cellular, atypical malignant proliferation. In the study of cancer, however, the employment of parthogenetic agents has only just been begun.

Recent discoveries in experimental parthogenesis suggest so many new theories regarding cellular

segmentation that it is logical to determine whether they cannot offer something toward the solution of the cancer problem.

W. A. BRENNAN.

Brown, A. E.: Observations on a Case of Post-operative Tetany with Implantation of Human Parathyroids. *Ann. Surg.*, 1922, lxxx, 418.

While recovering from an operation in which the right lobe of the thyroid was removed, a woman, aged 30 years, suffered an attack of cramps. For eight years thereafter she had similar attacks at frequent intervals. These were more severe and regular about the onset of the menstrual periods and remained absent during a term of pregnancy. After confinement they occurred with greater frequency and severity. The attacks were typical of tetany, including the characteristic position of the hands and feet and Chvostek's sign.

From August, 1919, until December, 1920, various methods of treatment were used with varying degrees of success. In December, 1919, parathyroid glands from a patient who died of exophthalmic goiter were transplanted under the aponeurosis of the external oblique muscle. In this operation difficulty was experienced in obtaining a fat-free bed, and no improvement followed, the cramps recurring every forty-eight hours or oftener. The patient was extremely neurotic.

In April, 1920, Bullock's parathyroids were injected intramuscularly without effect. In May, reinjection with larger amounts gave immediate relief but the cramps recurred after a week.

On June 8, three parathyroids from a boy of 17 years who was killed in an accident were transplanted within the sheath of the left sternomastoid muscle. The patient's condition then improved; all signs of tetany except the Chvostek sign disappeared and the mental condition cleared up.

On November 5, 1920, the patient's condition became poor again, but the only sign of tetany exhibited was a slight pointing of the toes and stiffness of the calves. The other symptoms were diarrhea, fever, a rapid pulse and respiration, cyanosis, slight albuminuria, and clenching of the fists. Neither *chlorel* nor parathyroid extract was of any avail. Later typical symptoms of hysteria developed with disappearance of all muscular stiffness. Death occurred December 11.

Autopsy showed intense cyanosis, an enlarged, congested spleen, normal kidneys, an enlarged, hard pancreas with a degenerated parenchyma and thickened blood vessels, the absence of parathyroids near the thyroid gland, and degenerated parathyroids in the sternomastoid muscle.

There are several features of interest in this case. The duration of the condition was unusual. The damage was evidently done in the operation for the removal of the right lobe of the thyroid, and the amount of parathyroid tissue left was sufficient partially to control the tetany for seven years. The stress of periods of glandular strain, such as menstruation, brought on the attacks, and the still

greater stress of lactation after childbirth precipitated the severe condition. Pregnancy entirely eliminated the condition temporarily. There is some definite relation between tetany and menstruation, pregnancy, and lactation. This has been brought out by various experiments on animals and in certain cases of tetany developing after partial parathyroidectomy during pregnancy.

The relation of calcium to tetany is not entirely clear. Cases in which tetany was relieved by calcium lactate are on record. The administration of parathyroid extract by mouth is useless, but its intramuscular injection offers more hope.

Parathyroid transplantation may constitute the best treatment of tetany, but the parathyroids must be obtained from persons over 10 years of age. The use of parathyroids obtained from cases of exophthalmic goiter is not contra-indicated.

MARCUS HOBART, M.D.

SERA, VACCINES, AND FERMENTS

De Herelle, F.: Bacteriophage Virus; Its Rôle in Immunity (*Das bacteriophage Virus; seine Rolle in der Immunität*). *Zeitschr. f. aerztl. Fortbild.*, 1921, xviii, 664.

An editorial in the *Zeitschrift fuer aerztliche Fortbildung* attaches to this work such importance as to admit that if the author's hypothesis is substantiated our conception of infectious diseases and their treatment must be entirely changed. The experiment upon which his conclusions are based was as follows:

The intestinal evacuations of a patient suffering from dysentery were cultured in bouillon and the emulsion was filtered. Ten drops of this filtrate produced in twelve hours a thick culture of the bacillus of dysentery. One drop of this culture yielded a second culture. A trace of this second culture yielded a third fresh culture. The more passages thus made, the shorter became the time necessary to produce further fresh cultures and the less the amount of the separated culture necessary to obtain fresh bacteriolysis. Therefore, after a dozen passages, a fresh culture of dysentery bacillus could be made to disappear in three to four hours with one milliardth part of a cubic centimeter.

The effective principle in this remarkable process cannot be a diastase for with its continuous dilution it would become weakening. Therefore it must be a living organism, an ultra-microbe which passes through a filter and increases at the expense of the bacillus culture. By this agent a bouillon culture may become so freed from dysentery bacilli that it appears sterile although in reality it has become a culture of bacteria-devouring micro-organisms, 1 c.cm. containing from 2 to 6 milliards.

The phagocytic bacterium is effective not only against the excitants of dysentery but also against other bacteria such as those of typhus, paratyphus, pest, bird typhus, cattle septicæmia, etc. The author assumes that it is an ultramicrobe which

becomes virulent for various sorts of bacteria through adaptation. Its normal habitat is the intestine where it lives at the expense of the colon bacillus. In several thousand tests it was found possible to isolate a bacteria-devouring virus from the stool in every intestinal disturbance, however slight, and even when the subject had been healthy previously. On the other hand, bacteria can defend themselves against the virus.

Bacterial disease is a battle taking place in the organism between bacteria and bacteria-devouring virus. It is nearly always possible to isolate powerful bacteriophages at the beginning of convalescence, but never when the infection has resulted in death. The isolated virus may be cultivated *in vitro* at the expense of the excitants concerned for an unlimited time.

In epidemics among animals the virus is found in all of the animals which remain healthy or recover. An epidemic dies out when the susceptible individuals are "infected" with the effective phagocytic bacteria. Passive immunity is also possible. An animal injected with a small quantity of bacteriophage culture directed against a pathogenic excitant will become resistant to the disease caused by the latter. In cases of typhoid in birds, which has a mortality of from 96 to 97 per cent, the author has been able to save by his treatment 90 per cent of those which have not reached the height of the infection. In an epidemic of cattle fever one drop of bacteriophage culture immunized an animal weighing between 200 and 300 kgm. In seven cases of severe dysentery in man the blood and bacilli disappeared from the stools in from twenty-four to thirty-six hours after the injection of 1 c.cm. of the bacteriophage culture and a cure resulted.

In conclusion the author cites experiments performed by Elava which prove the correctness of his theories.

KREUTER (Z).

BLOOD

Buzello, A.: The Treatment of Pyogenic Infection of the Blood by the Intravenous Use of Urotropin (*Ueber die Behandlung der pyogenen Blutinfektion durch intravenöse Anwendung von Urotropin*). *Deutsche Zeitsch. f. Chir.* 1922, clxviii, 61.

While bacteriological experiments *in vitro* with human serum at body temperature have not shown that urotropin has any considerable bactericidal action, clinical experience has taught that even a comparatively small quantity of it in the blood stream has a distinct therapeutic effect. It has been proved by repeated blood examinations that the bactericidal action of the blood is strongest from eight to ten hours after the injection of urotropin. It is therefore clear that substances remain in the blood for a considerable time which have at least a restraining effect on bacterial growth.

For the injection, a 40 per cent solution of urotropin in physiological sodium chloride solution is used. Single daily doses of 10 to 15 c.cm. are given.

The treatment must be stopped as soon as the characteristic irritation of the bladder with burning at micturition, haematuria, and increased stranguary appears. This is due to the presence in the bladder for some time of urine containing formalin, and appears in many cases after six to eight injections. Clinical and autopsy findings have shown that it is not related to injury of the kidneys. If this irritation of the bladder is to be delayed as long as possible the dose mentioned should not be increased even in severe cases. Two or three injections are often sufficient to bring about the desired result.

The injections should be followed by systematic cultural examinations of the blood. Of eighteen cases of pyogenic blood infection following surgical diseases which were treated by this method, all were cured except two which were fatal. The injections have proved harmless. BREUSNER (Z).

SURGICAL DIAGNOSIS, PATHOLOGY, AND THERAPEUTICS

Jaeger, H.: Injuries from Strong Electric Currents (*Ueber Starkstromverletzungen*). *Schwed. med. Wchnskr.*, 1921, xix, 1252.

Electric currents of less than 100 volts may be dangerous to man if the resistance of the isolating skin is greatly lowered, as by moisture or perspiration. Practically every technically used current may become dangerous under certain circumstances. The relation of the current strength to injury is discussed in detail.

The multiform clinical picture of injury from strong electric currents warrants a definite grouping of the symptoms:

The primary picture shows general, local, and distant symptoms, but these may not all be present simultaneously. Chief among the general symptoms is the "electric shock" which resembles cerebral concussion and is sometimes followed by mental confusion. The initial cardiac and respiratory arrest may often be relieved therapeutically. The shock must be considered a reflex effect for it occurs even when the central nervous system is not in the direct path of the current. The musculature undergoes either a single general spasm or a tetanic contraction lasting for some time.

The points of contact show local symptoms: the current mark (electric burn) causes the three ordinary degrees of burning. In the third-degree burn, the electric eschar, which is typical, the skin and subcutaneous tissue are changed into a brown, hard, bloodless, and dry mass. In the poorly conducting skin the electric energy may be converted into so-called Joule heat, the deeper and better-conducting soft parts being spared. Occasionally in the region of the eschar a subcutaneous collection of gas is found; this electrogenic emphysema evidently depends upon an electrolytic process. The eschars at the points of contact are frequently surrounded by a zone showing complete detachment of the epidermis. This epidermolysis is caused by

the surface radiation of the current in the epidermis moistened by perspiration. Not infrequently the region of the current mark shows an electrogenic edema which is differentiated from inflammatory edema by its sudden appearance, pallor, and hardness. Injury of the blood vessels may result in thrombosis. The effect of the current may be lasting enough to produce a primary necrosis of large areas of an extremity.

The distant symptoms include the so-called intermediate lesion caused by the current following the shortest route across skin folds in the region of joints which touch on their flexor surfaces, producing electric burns in the folds of the elbow, shoulder, hip, and knee distant from the point of entry and exit of the current. The effect on the muscles may consist of severe spasms and spontaneous luxations. The heart, kidneys, and liver show injuries which may be due to toxins.

The course of the injury from strong electric currents shows a series of typical complications. The advancing necrosis proceeds from the eschar and is due to a necrobiosis leading gradually to tissue death; the late necrosis may not appear for days or weeks. Secondary hemorrhages may result even in a dry and aseptic course. Home and ambulatory treatment should be avoided when the eschar is deep. Infection of the injured tissue aggravates the condition. The absolutely dry treatment is therefore indicated only up to the stage of granulation. In injury of the skull there may be extensive necrosis of the bones with osteomyelitis of the skull, suppurative meningitis, and brain abscess due to cooking of the cortex of the brain and secondary bacterial invasion. On the basis of his own experience the author recommends early trephination in cases of necrosis of the skull in order to prevent subsequent intracranial complications.

Among the late complications special attention should be directed to disturbances of the nervous system, some of which may be explained by the histologic findings. Besides necroses there are organic disturbances which resemble atypical forms of well-known conditions of other etiology. The author has observed a case of spinal paralysis which developed gradually the first week after the accident.

BRUNNER (Z).

ROENTGENOLOGY AND RADIUM THERAPY

Witherbee, W. D.: The Treatment of Focal Infection of the Throat by the X-Ray as Compared with the Surgical Removal of the Tonsils and Adenoids. *J. Radiol.*, 1922, iii, 129.

Roentgen rays have a selective destructive action on lymphatic and embryonic tissue. Since the tonsils are made up largely of lymphatic tissue, they are especially susceptible to radiation and the resulting shrinkage improves drainage of the crypts. Such treatment, properly administered, is safe and its results are permanent. It removes the focal infection more thoroughly and completely than any

other method yet devised, surgical or otherwise, and the contra-indications to operation do not apply to it. As compared with the surgical removal of the tonsils and adenoids, X-ray treatment is free from serious complications.

The technique is comparatively simple. In the average case a 7-in. spark gap, 5 ma. of current, four minutes time, a 10-in. distance, and a 3-mm. aluminum filter are used. The patient lies face downward with the head turned to the side, the position and angle of the patient and tube corresponding exactly to that employed by the roentgenologist in making a radiograph of the lower molars on an X-ray plate. The number of treatments is usually about eight. These are given at intervals of two weeks, and both sides of the head are exposed at each treatment. A special table and board have been devised for the treatment of children.

The objections so far encountered to the roentgen-ray method have been, first, the danger of a roentgen-ray burn. Burning is impossible if the technique prescribed is carried out. The possibility of injury to the parotid, the thyroid, the pituitary, and other adjacent glands has been amply tested in the past ten years in cases in which tuberculous glands of the neck have been treated by much larger doses, some of them being given as high as forty doses, whereas the dose for the tonsils and adenoids has never exceeded fourteen treatments in a series of nearly five hundred cases which have been treated in the past two years.

The method is indicated especially for chronic infection of the throat in vocalists since the muscular reconstruction of the throat is minimal as compared with that following the surgical removal of tonsils and adenoids. It is indicated also in cases of throat infection associated with rheumatism, chorea, diabetes, chronic endocarditis, hæmophilia, or any condition contra-indicating operation.

ADOLPH HARTUNG, M.D.

Lafferty, R. H., and Phillips, C. C.: Radiotherapy of Diseased Tonsils. *J. Radiol.*, 1922, iii, 132.

The first fifty cases of diseased tonsils treated by the authors fell roughly into four classes, as follows:

1. Those of adults with large, soft hyperplastic tonsils with deep crypts which generally discharged or contained pus.
2. Those of children with large, infected tonsils, and crypts generally not so deep.
3. Those of adults who had had their tonsils, or at least a part of them, removed and who retained a part of the tonsil with scar tissue.
4. Those of adults and children who had had the tonsils completely removed and who presented infected and enlarged lymph follicles in the pharynx.

The first class of cases are those which show the most decided improvement following X-ray treatment. The tonsils shrink rapidly, the crypts can be seen standing wide open, and the cultures show a marked decrease in the number of bacteria. Of this type there were twenty-nine cases. In

five of these. Attacks of tonsillitis ceased after one treatment, and in three after two treatments. In the remaining twenty-one cases an average of five treatments was given. The results were satisfactory. Cases of Class 2 also respond favorably. Of the eleven cases treated, ten showed perfect results and in the eleventh the treatment was not completed. The average number of treatments given was 6.2. Of the four cases which belonged to Class 3, all were benefited; the average number of treatments was eight. Class 4 included six cases, all of which apparently showed good results although the effect did not appear quite so quickly as in some of the other cases. The technique used was that recommended by Witherbee. **AROLD HARTUNG, M.D.**

Pacini, A. J.: The X-Ray Treatment of Tonsils with the Conjoint Use of the Ultraviolet Ray. *J. Radiol.*, 1927, III, 131.

In children there are three types of tonsillar conditions:

1. Those in which the tonsils are obviously hypertrophied, but are not excessively reddened, and the appearance of which suggests minimal bacterial activity.

2. Those in which an obvious reddening is present, suggesting bacterial activity below the point of clinically established infection.

3. Those in which the tonsils are markedly reddened and congested and infection is clinically established as evidenced by the associated systemic manifestations.

Cases of Type 1 are especially suited for roentgen therapy. The technique used is essentially that recommended by Witherbee. The effect of the treatment is manifested by a reduction in the size of the tonsil. In cases of Type 2, the roentgen ray applied alone was not as uniformly successful as in those of Type 1. It was necessary to supplement it by treatment to overcome the infection. The ultraviolet ray was found to meet this indication well. It was applied directly to the tonsil through a pharyngeal applicator in units of actinic saturation, usually on alternating days but in the more severe infections daily. Cases of Type 3 generally require surgical intervention.

Since the active immunizing types, grouped above as Type 2, are observed clinically by far the most frequently, it is obvious that the ultraviolet ray plays an important rôle in the treatment of tonsillar disease. The indications are plain, the application is simple, and the results obtained through the conjoint use of the roentgen and ultraviolet rays on hypertrophied tonsils are eminently brilliant and deserve every consideration. **AROLD HARTUNG, M.D.**

Mills, R. W.: X-Ray Evidence of Abdominal Small Intestinal States Embodying an Hypothesis of the Transmission of Gastro-Intestinal Tension. *Am. J. Roentgenol.*, 1924, IX, II, 109.

It seems that no considerable effort has been made to investigate small intestinal normal or ab-

normal conditions by means of the roentgen ray, with the exception of lesions of the duodenum which are not included in this presentation. Certain observations as to fundamentals in small intestine motility have been recorded. The outlines suggesting gross obstruction are recognized. The strikingly apparent dilated and ribbed loops of the obstructed small intestine made visible on the plate by gas and fluid or the ingestion of barium have been described. With the exception of gastrojejunal ulcer there does not appear to have been any conception that direct evidence of involvement of the small intestine might be obtained as in the stomach and colon or any effort made to elicit evidence of impairment of its function other than in ileocecal valve incompetence and ileal stasis. Even the atypical segmented shadows of the organically involved small intestine have been regarded only as evidence of slight local obstruction.

For the past ten years the author has made note of all unusual variations in the small intestine. Gradually it became apparent that some of these were associated with certain conditions; for instance, that in colonic obstruction a certain form of small intestine suggesting overdistension was generally observed. This led to the idea of recoil or relative stasis, a conception which was found to be supported on every hand by collateral evidence. The same is true of organic conditions. These atypical outlines of the small intestine were first noticed and recorded in 1916. In the subsequent five years they were observed approximately 600 times in the roentgen-ray examination of 6,000 persons, and were noted with increasing frequency as they became better appreciated.

In form, position, tonus, and motility the relation of the small intestine to habitus is the same as that of the stomach and colon. In sthenic types its position is higher, the coils are more discrete and of different arrangement, and the bowel has a demonstrably greater degree of tonus and a more rapid rate of motility than in asthenic and hyposthenic subjects. There are suggestions that the tension within the small intestine is greater in the sthenic types. Under normal conditions the appearance of the small intestine on the plate is characteristic.

Any organic process involving the wall of the small intestine either primarily or secondarily will modify the roentgen shadow of the contents of the part involved and thus render direct diagnostic evidence of its presence, if not as strikingly as in the stomach and colon or as suggestively as to the nature of the lesion, none the less positively as to the presence of an organic pathologic process.

The following principles concerned in abnormal functional conditions of the small intestine are offered:

1. When there is organic alimentary obstruction there will be dilatation and motor delay proximal to it, the degree of which is determined by that of the obstruction and the resulting proximal dilatation or hypertrophy.

2. Evidence strongly suggests that the same far-reaching proximal recoil occurs in somewhat less degree in functional stasis of the colon as in marked colonic constipation. The roentgen ray shows apparently that there is motor delay not only throughout the entire colon but also secondarily, in lesser degree, in the small intestine.

3. Any alimentary sphincter subjected to increased intravisceral tension originating either immediately proximal or distal to it tends to give way, and if this tension is sufficiently great, the sphincter becomes dilvulsed and incompetent and dilates with the contiguous dilated gut with resulting disturbance of proximal and distal motility.

4. Any acquired local lack of resilience in the gut wall due to an inflammatory or other pathologic condition will lead to recoil and relative proximal stasis.

5. Rarely, but to be mentioned as a possible principle, lesions lessening the recoil-absorbing power of at least certain proximal portions of the alimentary tract determine a greater motility distal to it.

6. It has been assumed that tension within the alimentary tube, if not constant throughout, may be proximally influenced by changes in distal tension.

7. Whenever there is over-rapid motility of the small intestine, the form of the small intestine will reflect it, indicating overdistension and increased fluidity of the intestinal contents, particularly noticeable in the jejunum.

Each of these so-called principles as related to the small intestines is explained at considerable length and the article is copiously illustrated to demonstrate the conditions described. Several tables are appended to show the incidence of atypical forms of the small intestine due to organic or functional conditions in a series of 5,735 subjects, and the nature of these conditions. Of organic conditions primarily involving the small intestines by far the greater number were due to peritonitis and adhesions of other than appendix origin. General abdominal carcinomatosis, metastatic carcinoma, and tuberculous peritonitis were next in frequency in the order named. Organic conditions causing atypical states of the small intestine secondarily included, among others, caecal-appendix pathology, post-operative conditions following appendectomy, and pressure due to tumors outside of the digestive tract, their relative frequency being in the order named. Of the functional conditions, many were indeterminable; constipation was a very frequent cause.

ADOLPH HARTUNG, M.D.

Thompson, S. A.: *Pneumopyelography: A Preliminary Report on Its Advantages and Technique*. *J. Urol.*, 1922, vii, 285.

Bringing the renal pelvis and calices into relief by the instillation of a medium opaque to the X-ray has been done for a number of years. The injection of air for the same purpose was advocated by Cole in 1910 but apparently has seldom been used to date.

The object of this paper is to increase the popularity of pneumopyelography, the technique of which is simple and the advantages of which are numerous.

The injection of oxygen into the ureter or renal pelvis creates a space which shows up black on the roentgen-ray plate and brings into relief not only the pelvis and calices, but also the kidney tissue, as it does not obscure the shadows caused by the tissues either in front or behind. For instance, the shadow of a stone in the ureter, pelvis, or calix will not be obscured by the oxygen, and the size, shape, and position of the stone can be easily determined. The black of the oxygen against the lighter shadow of the kidney substance makes a better contrast for the study of the kidney tissue itself than the white shadow of the opaque solution against the surrounding lighter shadow of the kidney. Oxygen meets fully the requirements of a contrasting medium as it is not toxic or irritating and, as it is more permeable than any of the opaque solutions, it will pass obstructions or constrictions more readily than solutions.

Pneumopyelography is perhaps most advantageous in the following groups of cases:

1. Stone in the ureter, pelvis, or calices. The size, shape, and position of the stone can be determined, and at the same time the ureter, pelvis, and calices are brought into relief.

2. Hydronephrosis.

3. Pyonephrosis.

4. Strictures or obstructions of the ureter which are not readily passed by opaque solutions.

5. Malformed and misplaced kidneys such as a horseshoe kidney lying across the spinal column, in which the pelvis, when injected with an opaque solution, cannot be clearly differentiated from the vertebra.

A detailed description of the technique used is given and one case illustrating the advantage of the method is cited. The following conclusions are appended:

1. Pneumopyelography is a simple, though uncommon, procedure and deserves greater popularity.

2. It is attended by apparently no reaction and causes the patient less discomfort than the injection of an opaque solution.

3. In certain cases it is a greater aid in roentgenographic diagnosis than the use of opaque solutions.

ADOLPH HARTUNG, M.D.

LEGAL MEDICINE

Requirements and Liability in Actions for Service.

Fincher vs. Davis (Ga.), 108 S. E. R., p. 905.

This was a suit to recover for professional services rendered the wife of the defendant, Fincher. In affirming a judgment in favor of the plaintiff, the court held that a person professing to practice surgery or medicine for a compensation must bring to the exercise of his profession a reasonable degree of care and skill. Any injury resulting from a want of such care and skill would be a tort for which a

recovery could be had. The exercise of this degree of care and skill is the measure of professional duty in all cases; and whether this degree of care and skill has been exercised in a given case is a question of fact for the jury.

In an action by a physician and surgeon to recover the value of professional services rendered the burden is on him to prove that he is a physician, that he was employed as such, and that he rendered the services alleged; also to show the value of such services as represented by the ordinary and reasonable price for services of that nature. In such an action, as well as in a suit brought by a patient for malpractice, the presumption is that the surgical or medical services were performed in an ordinarily skillful manner, and the burden is on the person receiving the services to show a want of due care, skill, and diligence. When a physician or surgeon renders necessary professional services to a wife, with her consent, the husband is primarily liable therefor, even in the absence of any expressed consent on his part.

On being asked whether the operation was done in a skillful manner, the private physician and surgeon of the wife of Fischer, who was familiar with the case and all the attendant facts and circumstances and who witnessed the operation, replied, "Yes, sir." The question and answers were objected to on the ground that they invaded the province of the jury in seeking and eliciting a conclusion on the main issue in the case, but the court stated that the opinion of an expert on any question relating to his profession is always admissible when given in response to a hypothetical question based on the testimony of witnesses other than himself, or when, as in this instance, the expert has himself observed the facts and gives his opinion based on his own observation.

The court charged the jury that, in considering whether the plaintiff exercised ordinary care and skill in his diagnosis and treatment of the defendant's wife, it must not set up a standard of its own, but must be guided in that regard solely by the testimony of physicians; and that as it was unable to determine from the testimony of physicians and surgeons what constituted ordinary care and skill under the circumstances, there was a failure of proof on the only standard for its guidance, the evidence was insufficient to sustain the defendant's plea of negligence, and the jury should find for the plaintiff a reasonable amount for the services rendered.

The trial judge was manifestly seeking to impress on the jury that they were unauthorized to impose any other or capricious standard, and while the language may not have been strictly accurate, in that the recognized methods employed by physicians and surgeons in the performance of such an operation might conceivably be shown by persons other than members of the medical profession, yet, as the only testimony introduced along that line was the testimony of physicians and surgeons, the inaccuracy of expression was necessarily harmless. While the

charge complained of may have sought by confining such proof to the testimony of physicians and surgeons to limit the methods of proving the specific duties owing by the plaintiff, it did not, so urged, thus limit the proof of negligence. A reasonable degree of care and skill must be taken to be that which, under similar conditions, is ordinarily employed by members of the medical profession generally.

J. A. CARTAGNINO.

No Evidence of Negligence Against the Defendants.

Wicker vs. Hamel et al. (Minn.), 134 N. W. R., p. 1015.

The plaintiff in this case sought to recover damages for the death of his infant child on the ground that the defendants, as physicians and surgeons, negligently failed to diagnose the ailment correctly and treated it improperly. The plaintiff urged that an operation was performed without the consent of the child's parents. After one of the defendants had treated the child for two or three weeks, it was, at their suggestion, taken by its parents to a hospital where it seemed that an operation was performed. The nature and extent of the operation did not appear, but apparently it consisted in the opening of an abscess in the neck or throat. Neither did it appear who performed the operation or whether either of the defendants was present or had anything to do with it.

This action was brought under the statute which provides that when death is caused by the wrongful act or omission of any person, the personal representative of the decedent may maintain an action therefor. There was no evidence, however, that the operation was not necessary and proper or not properly performed, or that it had any part in causing the death of the child. In short, there was entire absence of proof tending to show actionable negligence on the part of either defendant. The order denying the plaintiff a new trial, after a verdict had been directed for the defendants at the close of the plaintiff's evidence, was affirmed.

J. A. CARTAGNINO.

Malpractice Found in the Treatment of an Oblique Fracture.

Donnelly vs. Packard (Wisc.), 133 N. W. R., p. 164.

A laborer, aged 46, who had previously sustained a fracture of the femur of the right leg which resulted in shortening, on September 26, 1918, suffered an oblique fracture of the upper third of the femur of the left leg. He was taken to a hospital, where a physician who had temporarily placed the leg in a splint asked the defendant, who had been called to attend the plaintiff, whether it would not be well to perform an open operation on the leg and the two fragments of bone in order to shorten them and then re-attach the upper and lower parts of the bones by means of a plate and other appliances used in operations of that nature. To this inquiry, according to the plaintiff, the defendant made no reply, and the method suggested was not used.

After setting the bone the defendant applied a Buck's extension, and placed the limb in a splint surrounded by bandages. After the lapse of about ten days the plaintiff expressed his regret to the defendant that the suggestion of an open operation and the use of a plate had not been followed, and inquired whether any other method could then be pursued which might result in the shortening of the left leg so as to compensate for the shortening in the right leg. The defendant replied, according to the plaintiff's testimony, that he could take the weight off, meaning the Buck's extension, and allow the injured surface of the lower fragment to override the injured surface of the upper fragment. The extension was removed but, it was said, the defendant did nothing to hold the injured surfaces in proper position except to place the limb in a pneumatic ambulatory splint so that the patient could be removed from the hospital to his home.

The defendant testified that traction was applied when the ambulatory splint was used, but this was denied by both the plaintiff and his wife. The plaintiff was conveyed to his home, a distance of about 14 miles, over rough country roads, in a truck automobile, unaccompanied by the defendant or any other physician or skilled attendant. Nor, according to the plaintiff, did the defendant visit him for about two weeks. When he next examined the limb, he said he ought to have attended to it before as it was in poor condition. Thereafter he did not visit the plaintiff until about January 1, 1919, at which time the left leg showed a very marked bow and its condition prevented any considerable amount of walking or work and caused much pain.

A physician and surgeon of large experience in the treatment of fractures pronounced the results achieved by the defendant as a fair average of those obtained by the ordinary, skillful physician, and stated that out of 100 similar cases treated the results in 40 per cent would be substantially like those in this case. There was a sharp conflict in the testimony as to whether traction was removed before the adhesion of the bones; whether traction was applied when the Buck's extension was removed and the ambulatory splint was applied; whether the bones had united on their sides or on the broken surfaces; and whether the condition manifested by the bowing was due to the adhesion of the bones or to conditions that came about after January 1, when the plaintiff was advised and attempted to resume the use of the injured limb.

The jury found that the defendant in setting the fracture did not bring the broken surfaces of the bone together and maintain them in apposition during the healing period and failed to exercise that degree of skill and care ordinarily required by a fracture. It therefore fixed the plaintiff's damages at \$5,000, but the court reduced the amount to \$3,764.95 on account of compensation which the plaintiff had recovered from his employer under the Workmen's Compensation Act for the alleged malpractice. The judgment was affirmed on the ground that there was ample testimony to prove that the defendant failed to exercise that degree of skill and care ordinarily exercised by physicians in good standing in the locality of his residence, and that such failure was the proximate cause of the plaintiff's condition.

J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Black, W. T.: Retro-Displacements of the Uterus, with Suggestions Regarding Their Proper Treatment. *South M. J.*, 1922, xv, 310.

In discussing the operations for the cure of retro-displacements the author brings out several important points: (1) that congenital retroversion producing no symptoms seldom requires operation; (2) that simple retroversion following a recent pregnancy can often be corrected by means of a properly fitting pessary; (3) that no one type of operation is suited to all conditions; (4) that in round ligament operations the pelvic diaphragm and sacro-uterine ligaments must also be corrected; (5) that judgment is necessary in determining upon the operation; and (6) that many operations are done needlessly.

R. E. CHRISTIE, M.D.

Angeli, A.: Chronic Uterine Inversion; A New Method of Strip Vaginal Hysterectomy (Contributo allo studio dell'inversione uterina cronica. Nuovo processo di "isterectomia vaginale a lembi"). *Paladin*, Rome, 1922, xlix, sez. chir., 189.

Angeli's case was that of a woman of 60 years. The uterine inversion was of seven months' standing and was accompanied by complete prolapse. None of the customary conservative or other treatments applicable to uterine inversion promised a successful result. There were extensive histologic changes in the uterine tissue, circulatory changes, and a septic condition of the uterine fundus, etc., which rendered a sterile operation almost impossible. A hysterectomy was decided upon and as a preliminary measure the field was treated for some time by antiseptic irrigations.

Operation was begun by a transverse incision on the uterine fundus and opening of the serous infundibulum of the reversed organ. Sterile gauze was pushed through this opening to prevent the spread of infection and to hold back the intestines. The peritoneal serosa of the infundibulum was separated from all its connections and the uterine corpus split in two parts, a little anteriorly so as not to injure the uterine artery. The uterus was opened for its whole length in two strips, one anterior and somewhat narrow, the other posterior and including the uterine vessels and the adnexal pedicles. Ligatures were placed on each side to hold the uterine arteries, and the adnexal pedicles were sectioned. The sterile gauze was then removed, the peritoneum closed with continuous catgut sutures, and the two uterine strips sectioned at the level of the vaginal fornices.

The operation was quickly done and the loss of blood was very slight. The patient made an uneventful recovery.

So far as the author is aware, this method of vaginal hysterectomy in strips has not been described previously.

W. A. BRENNAN.

Jerle, J.: Wedge-Shaped Resection of the Uterus (Keilförmige Uterusesektion). *Rochdiady i chir. a gynaek.*, 1921, i, 241.

In order to extend the limits of the conservative procedures for the removal of fibromyomata of the uterus, the author tried the Pfannenstiel wedge-shaped resection of the uterus with certain modifications in suitable cases, a procedure devised for prolapse and chronic metritis. The ordinary laparotomy is done and after the ligation of both spermatic arteries and the round ligaments close to the angles of the uterus, he excises all of the fundus of the uterus involved by the tumors by means of two incisions extending from the lateral corners of the uterus toward the internal uterine os. After securing absolute hæmostasis, he sutures the two portions of the uterine body in the center with close catgut sutures, sometimes in two layers, leaving a small cavity covered with mucosa. At the tip of this newly formed uterus the two tubes and the round ligaments come in contact. In order to lengthen the uterine suture extraperitoneally and prevent adhesion to the intestines he unites both of the round ligaments on the anterior aspect of the uterus and the closely lying tubes on the posterior aspect, whereby the wound in the uterus is entirely covered. In three cases the results were good and menstruation was preserved.

KINDL (Z).

Desplas, B.: The Indications, Technique, and Complications of Wertheim's Operation for Carcinoma of the Cervix of the Uterus (Indications, technique et soins consécutifs de l'opération de Wertheim pour cancer du col utérin). *J. de chir.*, 1922, xix, 337.

The author reports the cases of eighty-five patients treated for carcinoma of the uterus. Fifteen of them died immediately after the operation, sixteen died a short time afterward from urinary tract complications, and forty-five are living. Twenty-one are living three years after the operation. The patients should be operated upon in the early stages of the disease before the bladder and rectum have become involved.

Before operation the patient is given a spinal anæsthetic, the uterus and cervix are curetted, and the vagina is disinfected by antiseptic irrigations. The operative technique is described in detail. The spinal anæsthesia is induced with stovaine, and maintained for fifty minutes. The ureters are carefully isolated and the uterus is completely removed. The pelvis is then thoroughly peritonized.

by suture of the vesicovaginal and vaginorectal peritoneum. The bases of the broad ligaments are sutured together and the edge of the sigmoid colon is sutured to the vesicopelvic peritoneum.

The most important postoperative complication is generalized peritonitis. During the course of the operation the ureters or bladder may be injured or a urinary fistula may develop as the result of tardy necrosis of the bladder or ureteral walls. Radium treatment is given postoperatively.

LOYAL E. DAVIS, M.D.

Clark, J. G., and Norris, C. C.: An Analysis of the End-Results in 232 Hysteromyomectomies, with Special Reference to Ovarian Conservation. *Surge., Gynec. & Obst.*, 1922, xxxiv, 509.

The following analysis is based on 232 patients subjected to supravaginal hysteromyomectomy more than one year ago. None of them had reached the menopause. Both ovaries were conserved in ninety cases, one ovary was removed in eighty-one, and both ovaries were removed in sixty-one. From the replies to a questionnaire sent the patients the following conclusions are drawn:

1. Hysteromyomectomy gives excellent end-results whether ovarian conservation is practiced or not. Of all the patients in this series, over 99.5 per cent were cured or benefited and over 83 per cent stated that their general health was good or improved one year or more after the operation.

2. Better end-results and greater comfort are obtained by ovarian conservation.

3. Everything being equal, better end-results follow conservation of both ovaries than the retention of one, but the preservation of one is far better than the removal of both.

4. Conserved ovaries seldom give subsequent trouble. In none of the cases was a second operation necessary.

5. Undue emphasis has been placed on the frequency of cystic and other forms of degeneration in conserved ovaries. This can be avoided by careful examination of the ovaries at operation and attention to the maintenance of an adequate blood supply and retention of the ovary in its proper position.

6. Since good results can be obtained following bilateral oophorectomy, it is better to sacrifice a doubtful ovary than to conserve it.

7. The surgical menopause is not severe in all cases in which both ovaries are removed. The patients who suffer unduly are in the minority.

8. Other factors being equal, there is no doubt that younger women suffer more severely from bilateral oophorectomy than those who are older, but age is not an unfailing criterion as to the severity of the surgical menopause in a given case.

9. The high-strung neurotic woman is apt to suffer more severely than the woman of the phlegmatic type.

10. Conserved ovaries functionate.

11. Even when the ovary does not functionate permanently, the occurrence of the surgical meno-

pause is less abrupt and severe than in women upon whom a bilateral oophorectomy has been performed. In the former class of cases the artificial menopause generally resembles the normal menopause more closely than that following the removal of both ovaries.

I. E. BISHKOW, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

D'Aunoy, R., and King, E. L.: Lithopedion Formation in Extra-Uterine Fœtal Masses. *Am. J. Obst. & Gynec.*, 1922, iii, 377.

The authors have found seventy-eight cases reported since 1880. To this number they add another as follows:

The patient was a colored woman, aged 90 years, who had a large, movable, sensitive, and smooth mass on the left side of the abdomen which was connected with the uterus, fixed in the pelvis, and presented several nodules on the surface about three to five finger-breadths above the symphysis. The patient stated she had had the mass for the last fifty years, and that it had given her no trouble. She died from an intercurrent disease.

The following salient features are quoted from the autopsy protocol:

"On opening the peritoneal cavity there appears an irregularly shaped nodular mass lying in the pelvis, principally to the left of the median line. This mass apparently is a fibroid uterus. Further examination reveals that it is thoroughly calcified, is anterior to the uterus, and does not spring from this organ but is intimately attached to it and to the intestines by dense fibrous tags. The right tube and ovary are present, the ovary being small and sclerotic. The left tube and ovary cannot be definitely located, the latter being closely adherent to the posterior surface of the calcified mass. The external outline of this mass is somewhat suggestive of the position assumed by the fœtus in utero. Upon removal and further study, the outline of lower fetal extremities can be determined with accuracy; the outlines of the nose, chin, and superciliary ridges are readily discernible.

"Section made by means of a saw through the long diameter of the mass reveals: (1) the calvarium, containing a semigelatinous substance through which a dense fibrous cord corresponding to the dural folds can be seen; (2) the upper extremities, which can be readily outlined (the humerus is present, the metatarsal bones are evident; the musculature is represented by a soft brownish-red material); (3) the folds of the small intestine; and (4) the bony parts of the lower extremities, which can be outlined without difficulty. The mass measures 15 by 13 by 10.5 cm. and weighs 800 gm. Its calcified envelope, varying in thickness from 8 to 16 mm., shows the extension of the calcification into the fetal parts at points corresponding to the lungs and the soft parts of the lower extremities. It is impossible to trace the left tube further than 1 cm. from its uterine attachment. There it becomes

obliterated and evidently in some manner involved in the fibrous tags which cause adherence of the intestines and the calcified mass. From these findings it is assumed that an ampullar pregnancy of the left tube has ruptured, the calcified mass being a lithokelyphopoechon according to Kuchmeister."

E. L. CORNELL, M.D.

Toepler, B.: The Reinfusion of Blood in Twenty-Four Cases of Ruptured Extra-Uterine Pregnancy (Ueber Blutreinfusion bei 24 Fällen von Graviditas extruterina rupta). *Deutsche med. Wochenschr.*, 1922, XLVII, 92.

The auto-reinfusion of blood, which was used during the war with excellent results, finds its main field of application in civil life in ruptured extra-uterine pregnancy. The author made use of it in the treatment of twenty-four patients who, with severe anemia, a barely perceptible pulse, dyspnea, and collapse, were almost dead from hemorrhage. All of them recovered without any complications and reacted very well to the administration of about 500 c.cm. of blood. The blood taken from the abdominal cavity was neither defibrinated nor treated with sodium citrate solution, but was mixed with equal parts of physiological salt solution. It was not necessary to remove the cannula tied into the subcutaneous veins of the arm. In some cases the effect of the auto-reinfusion of blood can hardly be distinguished from that of the administration of normal saline solution, but from observations based on a large number of cases it appears that reinfusion will sometimes save life when saline solution is no longer effective.

COLLEY (Z).

Whitehouse, B.: Salpingotomy Versus Salpingectomy in the Treatment of Tubal Gestation. *J. Obst. & Gynaec. Brit. Emp.*, 1922, XXIX, 93.

In 1914 the author investigated the pathology of tubal gestation in thirty fresh unhardened specimens of tubal mole abortion and rupture. This study led to the following conclusions:

1. Tubal mole is the direct result of intra-tubal rupture, and the mole invariably retains a very narrow basis of attachment to the tubal wall.

2. The attached base is usually situated on the floor of the tube and is always at the proximal end of the mole.

3. When tubal abortion takes place, the pedicle of a mole is torn through by the peristaltic action of the tube endeavoring to expel the foreign body.

4. Clots may be expelled from the tube through the abdominal ostium without separation of the mole.

5. The conformation of a tubal mole or abortion is due to the pressure of the tubal wall on the clot, the impression of the normal rugae being frequently observed.

6. The surface of the pedicle of a mole usually presents traces of tubal mucosa.

7. The deciding factor as to whether intra- or extra-tubal rupture will occur is the outcome of the

combination of tissue erosion and tissue tension. This is influenced by the site of implantation of the ovum in the ampullary, isthmic, or interstitial portion of the tube.

8. Evidence either macroscopic or microscopic, of previous inflammation of the tubal wall is the exception rather than the rule in tubal mole and abortion.

These investigations led the author to perform salpingotomy in five cases of tubal mole and abortion. Normal recovery resulted. There were no technical difficulties. Plain catgut and a round intestinal needle were used. In tubal rupture salpingectomy is probably preferable because of the severe hemorrhage. Time will tell whether the conservative method of handling tubal mole and abortion will be followed by complications such as recurrence, the development of a hydrosalpinx, or tubal chorionepithelioma.

I. E. BISHKOW, M.D.

Breuer, C. H.: Conservative Ovarian Surgery. *Nebraska State M. J.*, 1922, VII, 133.

It is only within recent years, since more thorough knowledge of the many functions of the ovary has been gained, that conservation of the ovaries has been practiced whenever possible. Today the ovaries are removed only when they are hopelessly destroyed by inflammation, suppuration, injury, degeneration, or malignant disease.

Experiments have shown that the ovaries have other functions than the production of ova. They control menstruation and influence the development of the breasts, the external genitalia, and the uterus. That they exert a strong influence on the nervous system is evident from the fact that hot flashes, emotional disturbances, and irritable temper sometimes bordering on insanity may result in the premature menopause. This influence on the nervous system is established through an internal secretion.

W. J. Mayo states that not only the ovary but menstruation has an endocrine function.

The chief function of the corpus luteum is associated with gestation.

The most frequent cause for which ovaries have been removed is the so-called cystic degeneration. This disease is characterized by the formation of small cysts the size of a pea which may be single or multiple. Crossen states that they are merely unruptured graafian follicles. It is rare that the whole ovary is degenerated; in the majority of cases a part of it can be saved.

Cystic ovaries give pain especially during the menstrual period. Formerly the author punctured these cysts but subsequently they healed over and became refilled with fluid and the pain returned. In order to avoid the train of symptoms of an artificial menopause the author performs conservative operations on the ovaries.

In oophoritis the acute stage is treated along conservative lines, operation being performed later if necessary. In ovarian hematoma the ovary is

incised, the clot removed, and the ovary sutured. In ectopic gestation it is rarely necessary to sacrifice the ovary.

When the ovary is involved by a solid growth it is usually so permeated that it must be removed. Malignancy requires radical excision. Prolapse of the ovary can be remedied by a small plastic operation. In operating on the ovary it is much better to handle it with the gloved hand than with instruments as the latter may traumatize the tissues. A fine round needle and plain catgut are used in suturing. Sutures placed close together with accurate coaptation of the edges prevent hemorrhage and subsequent adhesions.

I. E. BISHKOW, M.D.

Bride, J. W.: The After-Results of the Removal of the Uterine Appendages in Hysterectomy for Uterine Fibroids and Chronic Metritis. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 68.

In an endeavor to determine whether or not the removal of both ovaries in addition to hysterectomy is justifiable when these glands are normal, the author reviewed a large series of cases. He records his data from 231 replies to a questionnaire. The average age of the women was 39 years and all were under 47 years. Of the 231 cases both ovaries and tubes were removed in 186, and in 178 of the 186 cases a subtotal or supravaginal hysterectomy was done. In the remaining forty-five cases either one or both uterine appendages were left, and in the majority a vaginal hysterectomy was done.

The school of conservative gynecology recommends the conservation of at least one ovary to ward off the artificial menopause with its impairment of health, including hot flushes and sweats. Radical gynecologists, on the other hand, remove both appendages in addition to the uterus whether the appendages are diseased or not. They claim that the effect produced on the general health is little, if at all, greater than that of the conservative procedure, and that they gain the advantage of a cleaner pelvic floor and avoid the possibility of leaving an organ which may necessitate a second operation. In conserving the ovaries the only factor worthy of consideration by the surgeon is the effect of their removal on the general metabolism.

In a comparison of the results of the two operations it was surprising to find that there was so little difference in the percentage of adverse symptoms. One would expect to find the adverse symptoms of the artificial menopause very much more marked after the radical operation, and that there would be few if any after the conservative procedure. With regard to flushings and the effect on the sexual feelings a larger percentage of the patients suffered after the radical operation than after the conservative procedure. In a less degree the physical capabilities of patients seem better after the conservative than after the radical operation.

The general health was improved in a very large percentage of cases after either operation, but more

often after the radical operation (91 as compared with 84 per cent). The temperament after either operation was not much changed, but the percentage complaining of irritability was slightly higher after the conservative operation than after the radical procedure. Ninety-one per cent of the patients complained of flushings after the radical operation, and 73 per cent made this complaint after the conservative procedure.

Pain seemed to be more frequent after the conservative operation than after the radical (93 as compared with 82 per cent). Following the radical operation 6 per cent had more pain as compared with 15 per cent who suffered greater pain after the conservative procedure.

A very small percentage of patients complained of nervous symptoms after the operation but the percentage was larger after the conservative operation.

A larger percentage of patients had disturbances of their sexual relations after the radical than after the conservative operation, the proportion being 39 to 26 per cent.

There was a greater tendency to adiposity when both ovaries were removed.

The author concludes that so far as the majority of the manifestations of the artificial menopause are concerned there is very little to choose between the two types of operation. The advantage lies with the radical operation in all but two exceptions, viz., the occurrence of flushes and sexual disability. The difference between the figures is slight. The advantages of the radical procedure are that it is easier and quicker and therefore safer for the patient, it leaves a smoother pelvic floor with a linear scar running from side to side, there is less risk of the formation of adhesions, and the possibility of a pathologic change in the remaining ovary necessitating a second operation is avoided.

H. W. FINK, M.D.

EXTERNAL GENITALIA

Mueller, H.: Neurodermitis and Carcinoma of the Clitoris in a Young Girl (Neurodermitis und Klitoris carcinom bei jungen Maedchen). *Dermat. Ztschr.*, 1921, xxxv, 70.

The case history is reported of a girl who was suffering with neurodermitis. When the clitoris became involved the anatomical and clinical picture changed. A papillomatous proliferation developed which at first was very difficult to diagnose. A section suggested carcinoma, a suspicion substantiated by ultimate death which resulted in spite of X-ray treatment and operation. It is a question whether the malignant proliferation was due to the neurodermitic changes or to the continuous trauma from scratching. The author believes that when chronic irritation in the form of neurodermatitis is present the development of carcinoma finds particularly favorable conditions in the female genitalia.

GERLACH (Z).

Engelkens, J. H.: Primary Cancer of the Vagina (Primärer Krebs der Scheide). *Ned. Tijdschr. v. Geneesk.*, 1922, lxxv, 17.

Primary cancer of the vagina is considered rare but as the patient with a vaginal cancer usually seeks treatment late, it is difficult to determine the point of origin of the condition.

The author rejects the theory that it arises merely from the irritation of a foreign body (pessary, etc.). As it has a predilection for the extreme end of the posterior wall of the vagina, it has been attributed to the irritation of secretions, but in a normal condition the walls of the vagina lie together so that an accumulation of secretion is impossible. Treub attributed the more frequent occurrence of carcinoma of the cervix as compared with carcinoma of the fundus in women who have borne children to laceration of the cervix occurring during labor followed by local irritation.

Besides the local form of vaginal cancer beginning in the solitary lymph nodules which soften and then break down, there is the more rare diffuse form. The author describes a case in which, to induce abortion, a pure solution of lysol was injected into the uterus. Ten months later the vagina appeared as an inflexible tube with friable, slightly bleeding walls, the portio was similarly altered, and there was a foul secretion. The anatomical pathologic examination suggested an endothelioma and the clinical picture suggested an epithelioma. In a short time the patient had become emaciated and cachectic.

Ordinarily carcinoma of the vagina is made up of squamous epithelium, but glandular carcinoma, arising from displaced cervical glands or from rests of the canal of Gartner, are also described.

The first clinical sign is a slimy, purulent discharge, especially following coitus. Only in the advanced stages is there radiating pain. In the differential diagnosis condyloma, choroid myoma, and tertiary syphilis must be considered. The abundant lymphatic channels and the loose connective tissue beneath the thin wall of the vagina favor the spread of the condition.

The author reviews various methods of operation, and discusses also roentgen-ray and radium treatment. He favors a combination of operation and irradiation. To counteract the anemia following the use of intensive deep radiotherapy Engelkens gives injections of sodium cacodylate. In some cases a transfusion of $\frac{1}{2}$ liter of blood is given. On the basis of photomicrographs of a case, Engelkens discusses the influence of the roentgen rays on the tissue cells. In this instance there was a relapse which he attributed to deeply situated cells not reached by the rays. TUM (Z).

Steuding, O.: Vaginoplasty (Beitrag zur Vaginoplastik). *Zentralbl. f. Gynäk.*, 1920, xlv, 61.

The vagina may be constructed from the small intestine according to the Baldwin-Bari-Haberlich method, or from the rectum according to the method of Schubert.

In addition to its numerous other disadvantages, the first procedure has a high primary mortality. To the earlier cases reported by Schubert, Steuding adds a new case operated on by Schubert. The patient was a 17-year-old girl. A hymen, a small and a normal sized ovary, and a rudimentary uterus were present but there was no vagina. The vaginoplasty undertaken was complicated because of difficulty in mobilizing the rectum and drawing it down. From the tissue above the external anal sphincter and the fibers of the levator ani a wedge-like septum was constructed between the vagina and the rectum, and in order to prevent incontinence that portion of the sphincter which lay toward the vagina was gathered up in a button-hole suture. A good result was obtained.

By examination of the literature relative to this subject, by research, and by communication by letter it has been ascertained that in the forty-seven cases operated upon by Schubert's method there was no death and only a single case in which a second operation was necessary. On the other hand, in forty-nine cases operated upon by the small-intestine method there were ten deaths, a mortality of 21 per cent. SIMON (Z).

MISCELLANEOUS

Wynne, H. M. N.: Urethral Stricture in the Female. *Surg., Gynec. & Obst.*, 1922, xxxiv, 208.

Stricture of the urethra is much less frequent in the female than in the male. Meisel's studies showed that in Vienna clinics there were 378 strictures of the male urethra to one in the female urethra.

On physiological distention the normal female urethra is 3.5 cm. in length and 7.5 mm. in diameter and has a spindle-shaped dilatation in the central portion. The meatus is usually the narrowest portion. Child-bearing apparently has no effect upon the caliber of the urethra. Posteriorly at the meatus there is a small papilla, on the lateral and posterior portion of which are the minute orifices of Skene's glands. The lining of the urethra is stratified squamous epithelium except near the bladder, where it is of the transitional type.

Strictures may be located in any portion, but the most common sites are the external meatus and the anterior portion. The great majority of strictures are single, but multiple strictures have been reported. Strictures are classified as inflammatory, neoplastic, congenital, senile, and those of unknown etiology. Traumatic strictures are due to cicatricial tissue resulting from tears of childbirth, accidental injuries, erosion caused by strong caustics, etc. Inflammatory strictures follow gonorrhea, syphilis, tuberculosis, chancroids, and diphtheria. Gonorrhea is by far the most common cause. Most new growths are carcinomata, sarcoma is rare. Polyps and fibrous and vascular tumors are occasionally seen. Compression of the urethra by an external growth is probably more common than true stricture. Congenital stenosis is rare, when found it is usually

situated at the internal sphincter or in the posterior third of the urethra. A general thickening of the urethrovaginal tissue, considered a hyperplasia, which is found in women over 50 years of age, is called by Herman "senile stricture." Kelly mentions extreme contraction without assignable cause.

The symptoms of urethral stricture are usually a gradual decrease in the size of the urinary stream, increased time required for voiding, and dysuria. Occasionally acute retention may be the initial symptom. Others are strangury, pollakiuria, ischuria, nocturia, nycturia, tenesmus, and dribbling. The condition is often mistaken for cystitis. The diagnosis is made by examination with sounds or, preferably, olive-tipped or bulbed bougies. In certain cases the strictured areas can be felt through the vagina. The endoscope is necessary for a complete examination.

The treatment is gradual dilatation with sounds, bougies, or Hegar dilators over a considerable period of time. This treatment is given after a local anæsthetic has been applied to the mucous membrane. The instruments must be well lubricated, and the largest instrument passed at any sitting

should be left in place for ten to fifteen minutes. The size of the dilators used is determined each time by the degree of pain caused. At first, daily treatments should be given, but later the intervals may be increased. The treatments should be continued over a period of several months. Some cases have been treated by rapid dilatation under general anæsthesia.

Internal and external urethrotomies and resection of the scar followed by longitudinal suture have been done. Electrolysis is thought to be useless. Kelly suggests the employment of radium but has had no opportunity to test its value. If the lesion is due to vaginal bands or scars that can be resected with longitudinal suture of the wound, cure is assured. Cure can usually be obtained also by repeated dilatations. Chronic retention followed by dilatation and hypertrophy of the bladder with hydro-ureters and hydronephrosis ends in pyelonephrosis.

In a series of forty-two cases, cure was reported in twenty-eight and improvement or relief of symptoms in ten. In four there was no benefit.

CLAYTON F. ANDREWS, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Novak, E.: Uterine Pregnancy. *J. Am. M. Ass.*, 1922, Davis, 543.

In 1911 Cullen called attention to a bluish discoloration of the umbilicus as a diagnostic sign of ruptured intra-uterine pregnancy. Novak reports two cases showing this sign, in both of which the diagnosis was confirmed when the abdomen was opened.

The explanation of the discoloration of the umbilicus in cases of extensive intraperitoneal hæmorrhage lies probably in the lymphatics of the umbilical region. Ranschoff in 1905 reported a case of localized jaundice of the umbilicus. He was inclined to the belief that the phenomenon is due to simple inhibition, but in Novak's opinion it is more probable that the bile pigments are deposited in the skin after absorption by the lymphatics.

The different hues are due unquestionably to the different degrees of oxidation of the deposited blood pigments, as in the ordinary bruise.

The recognition of severe intra-abdominal hæmorrhage is simple enough unless the hæmorrhage causes a comparatively slight general effect, when it may become difficult. The demonstration of Cullen's sign in such cases will be of considerable value in the diagnosis. C. H. DAVIS, M.D.

Wallis, R. L. M., and Williams, H. G. E.: An Experimental Investigation of the Corpus Luteum in Its Relation to the Toxæmias of Pregnancy. *Lancet*, 1922, Oct., 784.

Because of the great divergence of opinion regarding the etiology of eclampsia and the fact that no one theory explains all the findings, the authors experimented on rabbits with fresh extracts from fresh corpora lutea of the pig and the human being. The solutions used contained no cholesterol, choline, histamine, tyramine, or protein.

This material injected into rabbits in repeated sublethal doses produced lesions similar to those found in the kidneys of women dying of eclampsia. The authors therefore draw the following conclusions:

1. From the corpus luteum a chemical compound has been isolated which produces in animals necrosis and other changes very similar to those found in the toxæmias of pregnancy.

2. This substance is not present in the placenta nor in the hydatidiform mole.

3. The over-production of this toxic substance is the cause of the toxæmias of pregnancy.

4. The results of these investigations throw light upon the relationship between the activity of the corpus luteum and many of the clinical manifestations of pregnancy, and form the basis for a new test of gestation. R. E. CRAMER, M.D.

Brouha: The Treatment of Placenta Prævia by Abdominal Hysterotomy (A propos du traitement du placenta prævia par l'hystérotomie abdominale). *Gynec. et obst.*, 1922, v, 105.

In Belgium, placenta prævia has been treated surgically for some time, and since 1913 Fraipont has treated certain cases of low insertion of the placenta by abdominal hysterotomy which prevents hæmorrhage and foetal asphyxia and the risk of infection of the mother associated with obstetrical manœuvres. Not all cases of low insertion call for surgical treatment but there are those in which the older methods are difficult and their results are doubtful; these are cases in which an alarming hæmorrhage occurs, the cervix is still long and closed, and exploration demonstrates a central or marginal insertion. Under such circumstances hysterotomy appears indicated.

The duration of the pregnancy, the site of the placenta, the patient's general condition, and the amount and frequency of the hæmorrhage are the factors on which the decision between obstetrical and surgical treatment before or at the beginning of labor must be based. It is essential that the woman be cared for in a properly equipped clinic and be kept under observation as it is only under such conditions that the indications for one or the other method can be determined exactly. Even if obstetrical delivery is a little less dangerous for the mother—which is not true in difficult cases—this fact does not counterbalance the safety of hysterotomy for the child.

Of eleven women upon whom the author performed cæsarean section, six were primiparæ, four were operated upon before the onset of labor, and seven were operated upon just at the beginning of labor. In one case the pregnancy was only seven months old; all the others were at or near term. In one case, complicated by a fibroma, the cæsarean section was followed by hysterectomy. Ten women recovered. One patient, a primipara aged 34 years, died four hours after operation from profound anæmia due to a severe hæmorrhage which occurred at about the time of labor. Her child lived. Two infants died within a few hours following operation without other symptoms than those due to progressive weakening. W. A. BRENNAN.

Vogt, W. H.: The Interruption of Pregnancy at Term, with a Consideration of the Methods of Estimating the Maturity of the Fetus in Utero. *South. M. J.*, 1922, xv, 194.

For a long time we have attempted to make labor easier for the mother, but in the careful observation of the mother we have only too often overlooked the fetus and as a result the number of foetal deaths has

increased. As a rule the cause of death is asphyxia. According to Schultze, this is due to the oxygen starvation which begins in the fetal blood at the rupture of the membranes, the retention of carbon dioxide being increased.

Veit found that in labors lasting two hours the incidence of asphyxia was 18.35 per cent, and in those lasting four hours it was 40.65 per cent.

Obstetricians realize that it is of little value to know that the pelvis of a woman is normal in all of its measurements if the size of the child is unknown.

Von Winckel claims that over 70 per cent of infants weighing more than 8 lbs. are over-mature, and that the continued overgrowth of the fetus increases the danger to both the mother and the child.

The estimation of the maturity of the fetus can be done much more reliably and more scientifically than by computing from the date of the last menstrual flow. To determine the size of the infant in the uterus the Ahlfeld, McDonald, and Perret methods are of value.

The Ahlfeld method is based upon the fact that the fetus at full term measures 50 cm. This measurement is taken by placing one end of the calipers against the upper and middle of the symphysis and the other end against the breech of the fetus. The reading is multiplied by 2, and 2 cm. are subtracted for the thickness of the abdominal wall.

The McDonald measurement is based upon the fact that the uterus grows on an average 3.5 cm. each month of gestation. This measurement is taken by passing a tape from the top and middle of the symphysis to the top of the fundus. The figure obtained divided by 3.5 gives the month of the pregnancy.

The Perret method consists of measuring the fetal head from the occiput to the frontal bone. To obtain the bi-parietal measurements Perret deducts 2.5 cm. from the occipito-frontal diameter. This measurement cannot be obtained if the head is fixed in the inlet.

C. H. DAVIS, M.D.

LABOR AND ITS COMPLICATIONS

Williamson, A. C.: The Premature Separation of the Normally Implanted Placenta. *Am. J. Obst. & Gynec.*, 1922, iii, 385.

The premature separation of the normally implanted placenta is more frequent than is generally believed.

Complete separation of the placenta is a grave condition calling for skill and good judgment on the part of the obstetrician.

Etiologically classified, there seem to be two main groups of cases: (1) a small indefinite group which may be called the "traumatic group"; and (2) the "toxic group," so named because the patient usually shows moderate or severe toxemia.

Mild toxemias may act slowly and cause partial or almost entire separation of the placenta. In

such cases the placenta shows more or less infarction which apparently is due to attempted connective tissue repair of the end vessels following the irritation produced by the toxins.

Abruptio placente or placental apoplexy shows the same process but in this condition it is much more marked. The process is fulminating because the toxin is formed rapidly. Its action may be compared to that of snake venom or the toxins of violent septicemias. There is apparently a corrosive action on the endothelial blood vessels, the coagulability of the blood is disturbed, and hemorrhages are still further favored by a sudden rise in the blood pressure. Hemorrhages occur not only in the uterus but also in all other organs containing vessels of the endothelial type.

If the disturbance is only moderate the treatment is expectant, but if the condition is at all serious the patient should be delivered promptly. A method of delivery should be chosen which seems to offer the patient the greatest security. Cesarean section is usually given the preference in fulminating cases in which an unresponsive uterus is suspected because it is a quick method of delivery, gives more information regarding the prognosis, and permits hysterectomy if necessary.

E. L. CORNELL, M.D.

Corbin, F. G.: Acute Pulmonary Edema in Labor. *Surg., Gynec. & Obst.*, 1922, xxxiv, 517.

Among the causes of acute pulmonary edema in the absence of renal, hepatic, cardiac, and infectious disease, or drug intoxication, Albert cites "purely mechanical causes."

Corbin attributes it to a spasm of the right or the left ventricle, because in the case reported in this article the injection of morphine effected a cure. In the treatment it is necessary to take only two causes into consideration: intoxication and heart trouble.

Cases of edema due to an intoxication should not be treated by morphine; bleeding with replacement by physiological serum is indicated. Those due to cardiac spasm should be given morphine; the use of strychnin would be illogical.

The patient whose case is reported became pregnant again, and again suffered attacks of edema, the latter finally causing death. The author presents the complete history of her last pregnancy.

C. H. DAVIS, M.D.

Gamble, T. O.: A Clinical and Anatomical Study of Fifty-One Cases of Repeated Cesarean Section, with Especial Reference to the Healing of the Cicatrix and to the Occurrence of Rupture through It. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 93.

This article is based upon the study of sixty-three pregnancies of fifty-one women who had previously been subjected to cesarean section. Fifty-five of the pregnancies followed a single cesarean section, and in eight cases there were two operations. The manner in which the pregnancies were terminated

was as follows: a second or third caesarean section in forty-five cases; vaginal delivery in seventeen cases; and rupture of the old caesarean scar in one case.

The author reaches the following conclusions:

1. The weak caesarean scar may be due to a single factor or to a combination of factors, the most important of which is infection.

2. An abscess puerperium does not give absolute assurance of perfect wound healing.

3. Perfection of the technique of suturing the uterine incision will undoubtedly lessen the incidence of weak scars.

4. Chronic output has proved to be a satisfactory suture material.

5. If possible, the uterine wound should not be closed until firm contraction of the musculature has occurred.

6. As a rule fetal elements do not invade the uterine scar.

7. Adhesions following caesarean section are common. They are not necessarily due to coexisting infection and may not give rise to serious complications at subsequent operations.

8. The dictum "once a caesarean, always a caesarean" cannot be accepted without reservation.

9. A patient who has once been subjected to a caesarean section should enter the hospital several weeks prior to the expected date of confinement so that she may have the benefit of immediate operation if rupture occurs. E. L. CORNELL, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Doederlein, A.: The Treatment of Puerperal Fever (*Ueber die Behandlung des Puerperalfiebers*). *Deutsche med. Wochenschr.*, 1922, XLVI, 22.

Puerperal fever is seldom caused by intoxication due to the retention of portions of the placenta, but is almost always due to the entrance of pyogenic organisms during labor, in particular the streptococcus and, less frequently, the staphylococcus or pneumococcus. The earliest symptom is a rise of temperature, which frequently is slight, on the third or fourth day after delivery. Therefore a careful record of the temperature during the puerperium is of great importance.

As treatment, Doederlein recommends a careful flushing of the uterine cavity with some preparation of iodine. Poisonous substances such as bichloride of mercury or carbolic acid or their preparations should never be used. The patient's bed should be inclined, the cervix carefully brought into position with the aid of a valved speculum, and secretion from the cervix obtained for bacteriological examination by means of a lochial tube. Any shreds of fetal membrane present should be removed with a pincette or dressing forceps and one liter of the iodine solution injected into the uterus without pressure through a large double-lumen catheter carefully introduced into the os. All mechanical interference, such as curettage, is to be avoided.

This treatment is frequently successful in bringing down the temperature; a single flushing will sometimes reduce it on the following day. If streptococci are found in the lochia and the fever persists or rises in spite of this treatment, the author uses colloid and protein preparations. Antipyretics also have a favorable effect. When possible, parametric abscesses should be opened from the vagina or from above the pelvis, according to their position. Extensive operations, such as hysterectomy, are contra-indicated in cases of streptococcal infection, but in other cases may be done with good results. In thrombophlebitis the ligation of veins may save life, but the correct choice of cases, of the time for the procedure, and, above all, of the technique, is very difficult. In a suppurative peritonitis the evacuation of pus from the abdomen is absolutely necessary; for this, a posterior colpotomy is excellent as it results in cure in 72.6 per cent of the cases. Doederlein often performed colpotomy for diagnosis because it constitutes only slight surgical interference. The posterior vault of the vagina is opened in a longitudinal direction and the peritoneum is penetrated with dressing forceps. If pus is present a drain is inserted through this opening, and if pus is not found the wound is closed by one or two stitches.

SEMON (Z).

Courbin J.: The Indications for Immediate Hysterectomy in Puerperal Infection (*Les indications de l'hystérectomie d'urgence dans l'infection puerpérale*). *Rev. franç. de gynéc. et d'obst.*, 1922, XVII, 130.

The indications for hysterectomy in puerperal infections are reduced by the author to two types of cases:

1. Cases of severe isolated lesions of the uterus, perforation gangrene, and multiple abscesses.

2. Cases of toxic puerperal peritonitis before the period of diffusion.

In cases of suppurative peritonitis only drainage can be done; hysterectomy is contra-indicated.

In the two types of cases mentioned operation must be performed early or not at all. Courbin does not find that laboratory examinations of the lochia or blood cultures are of much value; dependence must be placed on the clinical findings. Factors of value in the prognosis are: fever, the pulse, chills, the duration of the period of incubation, retention of the placenta, the facies, the character of the discharges, the condition of the uterus, the arterial tension, and Delbet's sign (abdominal immobility during respiratory movements).

When the lesion is confined to the uterine muscle the operative indication is given by the symptomatic triad of toxic facies, uterine muscle softness, and black and foetid discharges or the absence of a discharge. In cases of puerperal septic peritonitis the operative indication is given by the symptomatic triad of toxic facies, uterine muscle softness, and Delbet's sign.

Thrombophlebitis of the broad ligament is sometimes observed as a complication of severe lesions of the uterine muscle and under such circumstances is lost in the general clinical picture; it will complicate the operation and diminish its chances of success. Fortunately this condition is rare. In the majority of cases in which it occurs it is secondary to the septic parenchymatous metritis and does not cause toxic facies, being masked by the general picture of severe infection. Because of the considerable congestion and oedema due to the condition, ligation of the hypogastric vein is very difficult.

W. A. BRENNAN.

NEW-BORN

Reed, C. B.: *The Post-Mature Child*. *South M. J.*, 1932, XV, 286.

Maturity may be defined provisionally as that state or degree of development which enables the fetus to withstand easily the perils and aggressions of extra-uterine life. Mature babes measure from 48 to 53 cm. in length and weigh from 5 to 9 lbs.; the bi-parietal diameter of the head is 8.5 to 10 cm. and the occipito-frontal diameter is 10 to 12 cm.

The post-mature child is one which has attained overgrowth through detention in the uterus after it has become mature. Overgrowth of the child subjects the mother to prolonged labor and extensive laceration of the soft parts. The child, on the other hand, is endangered by the relative shrinkage in the blood supply, and exposed to strangulation at the vulva and prolonged cerebral compression. The unusual size of the child does not mean a better inheritance as the extra weight is rapidly lost.

The author does not claim that all babies of 9 lbs. or more are post-mature, but states that, according to von Winckel, 74.8 per cent have passed the estimated dates of their maturity. The human female requires about 275 days for gestation, the upper and lower limits being 321 and 268 days. According to Paevin, pregnancy is unduly prolonged in one of fourteen cases.

It is now possible to measure the length and the size of the child and the diameter of the head with more certainty than we can measure the pelvis. The diagnosis of fetal maturity will rest upon measurements made by the McDonald, Perret, and Ahlfeld methods, all highly dependable.

To determine the length of the babe by Ahlfeld's procedure one tip of the pelvimeter is placed upon the upper pole of the child and the other upon the upper border of the symphysis. From the reading thus obtained 2 cm. are deducted to allow for the thickness of the abdominal wall. The result is then multiplied by 2. In the author's experience the

postpartum figures tallied exactly with the antepartum estimate in 37 per cent of the cases.

McDonald found that a mature fetus requires a uterus whose fundus extends 35 cm. above the upper border of the symphysis. This measurement is taken with a tape along the convexity of the abdomen to a point even with, but not extending down into, the depression above the fundus. To determine the month of pregnancy, McDonald divides the height of the fundus obtained in centimeters by 3.5.

The diameters of the fetal head are obtained by Perret's manoeuvre. The occipito-frontal is measured as it lies more or less transversely across the inlet, without any allowance for the thickness of the abdominal walls. If the occipito-frontal measures 12 cm., for instance, 2.5 cm. are deducted to obtain the bi-parietal diameter; from 11.5 cm., 2.25 cm. are deducted; from 11.25 cm., 2 cm.; and from 10.0 to 11.0 cm., 1.5 cm.

The tests are fallacious and unsatisfactory in cases of hydramnios and extreme obesity, but on the other hand twins and lightening can often be recognized by means of the tape. C. H. DAVIS, M.D.

MISCELLANEOUS

Williams, J. T.: *Normal Variations in the Type of the Female Pelvis and Their Obstetrical Significance*. *Am. J. Obst. & Gynec.*, 1922, iii, 345.

There are two distinct and easily recognizable types of normal female pelvis which for purposes of designation may be called the "feminine" and the "muscular" types.

The first, or "feminine type," presents external measurements closely approximating the 20, 25, 28 cm. of the textbooks, thin bones, and a wide outlet.

The second, or "muscular type," is characterized by large external measurements, but a narrow outlet and an angular pubic arch. The bones are as a rule heavier. The os pubis is thicker and more horizontal, and the pelvic inclination increased. The muscles and fasciæ are firmer than those in the first type of pelvis.

Although both these types must be considered normal, the "feminine type" is much more favorable for labor. In the "muscular type" premature rupture of the membranes occurs in nearly 40 per cent, and posterior positions of the occiput are more common. In spite of the larger external measurements of the pelvis of the muscular type, cesarean section is necessary in a greater percentage of the cases as the horizontal os pubis and the greater pelvic inclination interfere with both the normal mechanism of labor and operative intervention.

E. L. CORNELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Petrén, G.: *The Clinical Significance of Accessory Renal Vessels* (Beitrag zur Frage von der klinischen Bedeutung der akzessorischen Nierengefäße). *Upsala Läkaref. Förel.* 1921, xxvi, 37.

In the surgical clinic of Upsala, Petréu operated on three cases in which accessory renal vessels were clearly the cause of renal disease. In a fourth case in which an abnormal renal vessel was found its relation to the disease could not be determined. This was the case of a woman of 60 years who, on the day preceding her admission to the hospital, developed symptoms of severe pyelitis. A tender renal tumor was palpable on the right side. Repeated rigors then developed so that on the third day surgical treatment was indicated to save life.

At operation the renal pelvis was found to be dilated, greatly inflamed, and filled with a thin fluid. There came to view also an abnormal renal vessel to which attention was attracted by a severe hamorrhage. In the tissues altered by inflammation, however, it was impossible to determine the relation of the torn vessel to the ureter and pelvis of the kidney. Petréu regarded the abnormal vessel as the cause of the dilatation of the pelvis of the kidney. The patient recovered.

The second case was that of a 6-year-old girl who, nine days before her entrance into the hospital, suffered an acute attack of pain in the right side of the abdomen, associated with high fever and sensitive resistance to the right of the umbilicus. A diagnosis of abscess of the appendix was made and a laparotomy was performed. Operation showed the condition to be a retroperitoneal process. In the course of further treatment the diagnosis was changed to intermittent pyonephrosis of the right side. Operation disclosed a large hydronephrosis with infection. The emptying of the pelvis of the kidney was hindered by an abnormal renal vessel which extended from behind the ureter to the anterior border of the inferior pole of the kidney, and by the formation of a spur 3 to 4 cm. higher up at the exit of the ureter from the pelvis of the kidney. The hydronephrosis had so greatly altered the kidney that nephrectomy seemed necessary.

The third case was that of a woman of 48 years who for over a year had suffered from repeated attacks of pyelitis on the right side and had had a fresh attack four days previous to her entrance to the hospital. Besides other pyelographic indications there was a marked dilatation of the right pelvis into which 45 c.cm. of a 5 per cent solution of potassium iodide could be injected without causing discomfort. The probable diagnosis was early hydronephrosis based upon an abnormal renal

vessel. Operation revealed the cause of the dilatation to be a vascular cord consisting of an accessory artery and an accessory vein which crossed the anterior portion of the renal pelvis and entered the inferior pole of the kidney. The vascular cord was ligated and excised. Nine months after the operation the patient was still free from attacks of pain and all symptoms of pyelitis.

The fourth case was that of a man of 24 years who for ten months had had repeated attacks of pain in the right side of the abdomen. During the two and one-half weeks he was under observation in the clinic before operation he had six attacks. In one of these the right kidney became enlarged, firmer, and very tender. With this exception no method of examination gave any positive findings. A diagnosis of hydronephrosis was made. Operation revealed a dilatation of the pelvis of the kidney due to an accessory vascular cord consisting of two vessels which lay close together, crossing in front of the ureter directly at its exit from the pelvis of the kidney and entering the kidney at its inferior pole. The vascular cord was ligated and excised. At first the patient was entirely relieved of his pain, but three and one-half months later the attacks recurred. Fourteen months after the operation, the pelvis of the right kidney was found to be still considerably enlarged and the X-ray revealed a small kidney stone. The author is of the opinion that the renewed attacks of pain were caused not so much by the dilatation of the pelvis as by the stone as they were very sudden and colicky.

Petrén discusses the frequency and the anatomical relations of accessory renal vessels and reviews briefly the more important results of research regarding them. The essential clinical importance of accessory renal vessels lies in the fact that under certain circumstances they obstruct the passage of the urine from the renal pelvis and thereby cause dilatation.

The relationship between abnormal renal vessels and hydronephrosis was long a disputed question. Rokitsky was the first to suggest such a relation. The author states that the presence of abnormal renal vessels should be suspected in any case in which there are recurrent attacks of pain of the renal colic type or repeated attacks of pyelitis and in which the X-ray shows no stone, the ureter allows catheterization, and the pyelograph shows dilatation of the pelvis of the kidney; also when there has been no history of urinary disturbances, subjective urinary discomfort, or demonstrable alteration in the urine. As soon as the diagnosis of hydronephrosis due to accessory renal vessels is made or this condition is merely suspected, exploratory nephrotomy is indicated. DUNN (Z).

Foot, O. C.: *Pyelonephritis—a Critical Review of 100 Cases*. *California State J. M.*, 1922, xx, 131.

The author states that pyelonephritis occurs more frequently in females than in males because of pregnancy and gynecological operations. Gynecological procedures should be preceded by the administration of urinary antiseptics, and this should be continued during convalescence.

Pyelonephritis is extremely common in childhood, and less frequent during youth, but may develop at any time of life. In the large majority of cases occurring in children a spontaneous cure results. When this does not occur the subject's resistance is so lowered that he is rendered susceptible to other infections which may prove fatal. Such cases should be treated by pelvic lavage. There is no difference between the right and the left kidney in the incidence of infection.

Pyelonephritis is most often manifested by bladder disturbances alone, but may be accompanied by abdominal pain and when associated with acute infection may be extremely difficult to differentiate from urinary infection associated with appendicitis. Not all cases show pus in the urine. Direct slide smears are of more value than cultures. Certain organisms infecting the urinary tract other than the tubercle bacillus will not grow on ordinary media. It is not the function of the kidney to excrete bacteria; their presence in the urine is evidence of a pathologic process in the kidney. Chronic nephritis associated with infection of the kidney is not uncommon. The presence of large amounts of albumin in these cases has led in some instances to exhaustive studies of other portions of the body for foci of infection, the kidney itself being entirely neglected.

Persistent cases of pyelonephritis in which urinary stasis is absent may have as their cause gastro-intestinal stasis. Pyelograms should be made in cases of persistent pyelonephritis to demonstrate the absence or presence of ureteral stricture.

LOUIS GROSS, M.D.

Buerger, L.: *The Non-Operative Treatment of Ureteral Calculus*. *Med. Rec.*, 1922, ci, 525.

Non-operative treatment for the removal of ureteral calculi should be begun as soon as the diagnosis is made. Cystoscopic intervention is advisable in almost all cases of ureteral stone within a short period after the stone has found lodgment in the ureter. Buerger does not accept the dictum that calculi from 1 to 2 cm. in diameter are often expelled spontaneously; this generalization, he believes, is fraught with considerable danger. In many such instances in which operation has been done an early attempt at cystoscopic removal might have hastened the expulsion of the stone.

However slight the distention following obstruction due to stone, certain permanent lesions are produced. In discussing hydronephrosis and hydro-ureter, the author states that in his experience kidney or lumbar pain produced by ureteral stone is due, not to the damage or trauma in the

ureter caused by the stone itself, but to distention of the kidney by backed-up urine. Such a complication can be quickly overcome if the obstruction can be passed with a catheter so that the retained urine may be drained off.

The necessity for active interference in the presence of ureteral stone is based on the following facts: (1) small stones arrested in the ureter may produce dilatation of the kidney pelvis, secondary infection, and destruction of the kidney; (2) even the very smallest stones may produce complete obstruction; (3) by the passage of one or more ureteral catheters or bougies, drainage may be established and the progress of a stone through the ureter may be hastened; (4) even large stones 1 cm. or more in diameter may be removed by the use of catheters and bougies; (5) the introduction of ureteral catheters prevents complications; (6) the emptying of the distended renal pelvis relieves the symptoms immediately.

Complications which may develop if a stone is allowed to remain in the ureter are: (1) marked hydronephrosis with secondary infection; (2) infection of the non-hydronephrotic kidney; (3) rupture of the hydronephrosis or pyonephrosis; (4) perinephritic abscesses; (5) dilatation of the ureter; (6) sclerosis and stricture of the ureter; (7) secondary stone formation in a dilated ureter or the ureter above a stricture; (8) peri-ureteritis and peri-ureteral abscess with or without ureteral perforation.

For the removal of stones in the lower pelvic ureter Buerger finds necessary a cystoscope, ordinary ureteral catheters, Garceau catheters, and olivary metal-tipped bougies. Manipulation is carried on with an olive-tipped catheter until the obstruction is overcome. The retained urine having been drawn off by the first catheter, the latter is allowed to remain for an hour before a second catheter is passed. A solution of silver nitrate may be introduced through the permanent catheter to combat infection. If possible, a second attempt to dilate the ureter and remove the stone should be made after an interval of one week. Catheters of varying size or two catheters of size No. 6 may be used. When it is impossible to pass the second catheter, olive oil or glycerine may be employed as a lubricant. Occasionally adrenalin or novocaine in oil will overcome the spasm. At each manipulation both catheters should be withdrawn at the same time.

The author describes a chemical process whereby the catheters may become agglutinated to the stone. He is of the opinion, however, that the downward course of the stone during manipulation is due chiefly to friction. By the method described the stone may be entirely removed from the ureter, moved an inch or more, or broken into smaller pieces. When infection is present, operation may be necessary at once, but Buerger believes that if the ureter is repeatedly drained and treated with silver nitrate the infection will be overcome. When

the obstruction is not passable, olive oil or glycerine is introduced up to the stone. The lower ureter is dilated by introducing a number of catheters, one under the other so that the ureter is dilated by their wedging action. Usually treatment should be given about once a week but this may vary according to the findings.

In cases of stone in the intramural portion of the ureter Buerger passes two catheters and attempts to make them cross in the ureter and engage the ureteral stone simultaneously. After the introduction of a second catheter, the first one is somewhat withdrawn and reintroduced. A similar maneuver is carried out with the second catheter. This procedure is repeated until, by simultaneously pulling, both catheters are engaged against the ureteral stone and instead of pulling in line with the ureter are made to diverge. In this manner the ureteral orifice is forcibly dilated. In some instances the author has been able to move the stone into the bladder.

The removal of a calculus in the lumbar ureter is more difficult. The stone may be pushed back into the pelvis of the kidney. The general methods already described are used but with even greater care. For dilatation the author has devised an olivary dilator, the olive-shaped tips of which are made of steel and are removable so that various sizes may be used. This is employed when the two-catheter method fails and when large stones are present and have been embedded for a considerable period of time. When Buerger finds large stones crowded in the intramural portion of the ureter he uses special intravesical procedures. The instruments for this operation are a punch forceps and scissors to incise the upper lip of the ureter.

GILBERT J. THOMAS, M.D.

BLADDER, URETHRA, AND PENIS

Grant, W. W.: Ectrophy of the Bladder. *South M. J.*, 1922, XV, 297.

The author presents a case of ectrophy of the bladder, describes his operation for the relief of this condition in detail, giving the credit therefor to Bergenhien-Peters, discusses various other procedures for the relief of the deformity, and closes his paper with a summary of his discussion. The case reported was that of a man 26 years of age, the fourth of six children, all the rest of whom were normal and healthy. The patient was 5 ft., 7 in. in height. Before operation he weighed 140 lbs. and today weighs 150 lbs. Since the age of 7 years he had worn gauze pads on the bladder area, changing them as soon as they became saturated. The toes were *conusculoides*; everted, and the right testicle was undescended. There was complete epispadias, the mouths of the seminal ducts being in plain view at the base. The exposed bladder mucosa, as large as the palm of the hand, was red and vascular. The ureteral mouths were situated low down and in normal relation to each other. The urine was normal

in character and quantity. No prostate was seen.

At operation, ureteral catheters No. 5 were anchored 3 in. within the ureters. The dissection of the bladder mucosa, begun at the top, was continued above and laterally to within 1½ in. of the ureters, a smaller margin being left below on account of the proximity of the meati and seminal ducts. This dissection was difficult and accompanied by a good deal of bleeding; the deep dissection, however, was easily done. When the dissection had been completed an assistant pushed the anterior wall forward into the field of operation by means of a finger inserted in the rectum. A 2-in. longitudinal incision in the bowel was then made, the wound held open, and the base of the bladder, slightly larger than a silver dollar, was turned over and pushed gently into the rectum, the catheters being drawn through the anus without forcible traction. The ureters were vertically placed in the rectal wall, the left above and the right below. The author believes the rectum and sigmoid are large enough for the new function without artificial spreading. The rectal incision was closed snugly around the ureters with chromic gut, the stitches embracing all the coats of the bowel and including a bite in the posterior, now the anterior, surface of the bladder wall, but leaving the edges of the trigone free in the rectum.

A rectal tube was used for five days, at the end of which time the ureteral catheters were removed. After the first day the quantity of urine was normal. The author believes the catheters are advantageous in preventing soiling of the wound by urine during the healing process. The hiatus left by the bladder transplant was partially closed at the top by undermining the skin; the deep and lower part of the wound was stitched fairly well to the inferior part of the incision. On the fifth day a laxative was prescribed and thereafter a rectal enema of boric acid and salt was given two or three times a day.

Recovery was uneventful. The patient left the hospital on the tenth day, but was kept in bed for three weeks. For two months thereafter a rectal catheter was used during the day in addition to the rectal douche to drain the liquid contents of the bowel into a rubber urinal.

Although the ureters have an independent blood supply, the author believes the preservation of the normal relation between them and the base of the bladder gives the former added protection and nutritive support following transplantation. Three months after the operation the unhealed area at the site of the bladder transplant was closed by long sliding skin flaps from the lateral walls of the abdomen. The removal of one of these flaps exposed the right inguinal canal and revealed the immature right testicle. The latter was removed. After ten days the patient was able to retain his urine for three or four hours, and in three months he was able to retain it six hours. He is now doing farm work.

The author chooses the rectum rather than the cæcum for the ureteral implantation because it is relatively easy, by frequent douches, to keep the

rectum comparatively clean, and he regards the sigmoid as the chief faecal cloaca. Dividing the ureters before they enter the bladder and transplanting them into the sigmoid intraperitoneally by the Coffee-Mayo technique may be the operation of choice in malignancy and tuberculosis of the bladder, but in exstrophy of the bladder the extraperitoneal operation of Bergenhem-Peters modified by Moynihan and others should take precedence over all others. The Harrison operation in which the urinary current is brought out in the back or loins improves the patient's condition little as the chances of infection are no better and the area to be kept dressed is in a location not as readily accessible to the patient as the pubic region.

The mortality of the Bergenhem extraperitoneal operation is 15 per cent while that of the intraperitoneal operation is 28 per cent. Following the use of the old methods 50 per cent of the patients died before they reached their tenth year of age and two thirds died before they reached maturity.

The conclusions drawn are as follows:

1. The extraperitoneal implantation of Bergenhem-Peters, modified by transplanting the ureters and trigone intact and through one anterior rectal incision, is the operation of choice.

2. The two-stage operation is neither necessary nor desirable.

3. The preservation of the blood supply and the ureteral valve action in transplantation of the ureters and the base of the bladder intact is of distinct value for the immediate success of the operation and the prevention of ascending infection. It is therefore the method of choice.

4. In advanced malignancy and tuberculosis of the bladder, the Coffee-Mayo operation is the operation of choice.

5. The rectal cloaca is ample as a urinary reservoir without operative effort to increase it.

6. The rectal mucosa becomes almost as tolerant of the presence of urine as the normal bladder, and the danger of uræmia from absorption of urine by the bowel is very slight.

7. Urinary control is essential to any successful operation upon the bladder and is effectively and satisfactorily obtained in the operation described.

8. The consensus of surgical opinion is against operation for this condition before the fifth year of age.

C. D. HOLMES, M.D.

Day, R. V.: Foreign Bodies in the Bladder. *J. Urol.*, 1922, vii, 243.

The author reviews the various intravesical methods devised to remove foreign bodies from the bladder. The instrument he employs most is a foreign-body extractor which works like a lithotrite. He cites a case in which he used a Buerger cystoscopic snare to remove a broken-off hat pin. The flexible cystoscopic forceps he considers too frail in most instances. Instead, he employs an alligator forceps through a direct-vision cystoscope.

H. G. HAMER, M.D.

Kretschmer, H. L.: Demonstration of Bladder Diverticula. *Surg. Gynec. & Obst.*, 1922, xxiv, 548.

Cystoscopy gives information regarding the number and location of diverticula but fails to reveal their size. Cystography used as an aid to cystoscopy may not give the desired information because of the position of the diverticulum. The passage of shadowgraph catheters into the diverticulum followed by the injection of an opaque medium gives more accurate findings. When the latter method is combined with air cystography, still sharper definition is obtained.

FRANK HINMAN, M.D.

Kreutzmann, H. A. R.: The Treatment of Hunner's Ulcer of the Bladder by Fulguration. *California State J. M.*, 1922, xx, 128.

After discussing the etiology, pathology, and symptoms of Hunner's ulcer, the author states that while it is generally agreed that the only treatment is excision of the diseased portion of the bladder, less dangerous procedures should be given a fair trial before operation is attempted.

The patient whose case is reported was a woman 46 years of age. In 1914 she was operated upon for "tumor," but no tumor was found, and a second operation was performed for fibroid of the uterus but no fibroid was found. In the second operation the ovaries, tubes, and appendix were removed. Shortly afterward bladder pains developed similar to those she had previously suffered whenever she caught cold. In 1919 the patient was referred to Kreutzmann, who made a diagnosis of Hunner's ulcer. Fulguration of the bleeding areas in 1920 was followed by entire disappearance of the symptoms within one month, and eight months later the patient still remained free from pain.

The author states that the results obtained by fulguration in this case warrants its use before the more severe operation of resection of the bladder is attempted.

LOUIS GROSS, M.D.

Young, H. M.: The Use of the High Frequency Current in the Treatment of Lesions of the Deep Urethra. *J. Urol.*, 1922, vii, 221.

The author states that in cases of lesions of the deep urethra an irrigating instrument with a channel for the introduction of the high-frequency electrode is essential as by means of this the treatment can be applied under control of the eye. The article contains an interesting and instructive series of drawings which illustrate the method of using the fulgurating electrode in many of the lesions of the posterior urethra.

B. F. ROLLER, M.D.

Wolbarst, A. L.: Urethroscopic Findings in Functional Disorders of the Genito-Urinary Tract. *J. Urol.*, 1922, vii, 209.

Wolbarst studied fifty cases in "an attempt to find a common factor" or "to determine whether or not certain clinical phenomena of the genito-urinary tract are associated with well-defined patho-

logic lesions of the deep urethra as seen through the urethroscope." The cases were classified in three groups according to the predominating symptoms—sexual, urethral, and pain. Of the fifty patients, twenty-one were examined for impotence and premature ejaculation, ten for pain, eight for sterility, six for urinary disorders, and five for excessive nocturnal emissions.

Functional disorders of the genito-urinary tract are not due necessarily to gonorrhea; the cause of non-specific conditions is generally masturbation or coitus interruptus. A careful study of the disorders of urinary function and those of sexual function shows no sharp line of demarcation. In every case of functional disturbance the verumontanum and posterior urethra are both involved, but chiefly the urethra.

Of the twenty-one cases of premature ejaculation and impotence practically all showed marked inflammation of the verumontanum and the urethra behind it. Of the eight cases of sterility without epididymitis all showed inflammatory distortion and damage of either the verumontanum or the posterior urethra or of both. In the ten cases of pain either the verumontanum or the posterior urethra or both were seriously involved. In the six cases of frequency of micturition the urine was hyperacid and the verumontanum or posterior urethra showed inflammation or cysts. In the five cases of excessive nocturnal emissions the verumontanum and the deep urethra were markedly involved. The prostate and seminal vesicles were also involved in practically all of the fifty cases.

The author states that the term "sexual neurasthenia" is a misnomer and that every case of functional disorder of the genito-urinary tract should be subjected to thorough examination by the urethroscope.

B. F. KOLLER, M.D.

GENITAL ORGANS

De Vries, T. J.: The Results of Ligation of the Vas Deferens (*Ueber Folgen von Vas-deferens-Unterbindung*). *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxi, 262.

De Vries discusses the effect of ligation of the vas deferens upon the testicles and the prostate. He concludes that it has not been proved that the "interstitial cells" constitute the puberty gland. The interstitial cells increase during puberty and less decidedly in senility, intoxications, and infectious diseases, and following the ligation of the vasa deferentia. The latter increase is not physiological but occurs at the expense of the spermatogenetic cells. Little is known regarding the effect of prostatectomy upon the vasa deferentia and testicles as autopsy findings are not available and the opinions on this subject vary considerably; the same is true regarding the effect of vasectomy upon the testicles.

The author gives the autopsy findings in the case of a man who died three weeks after ligation of the vas deferens. This is the first autopsy report

of such a case since the beginning of Stenach's investigations. The clinical cause of death was given as cachexia following and due to the vasectomy or carcinomatous cachexia. Neither was correct. The organs of internal secretion were entirely normal and no injurious effect of the vasectomy was found. During the three weeks following the operation the prostate had not become decreased in size. The demonstrable prostatitis the author attributed to a retention catheter which caused cystitis. The ejaculatory ducts were outside of the prostatic capsule and entirely patent. Although there had been no spermatogenesis for a long time, there was an ectasia of the head of the epididymis. From this fact the author concludes that the testicle has some other external secretion than spermatozoa. Because of atrophy of the spermatogenetic tissue, an increase of the interstitial cells was not found. It was shown also that, because of prostatic hypertrophy with residual urine and urinary stasis, the patient had suffered from uræmia. The author gives various possible explanations for the origin of this urinary stasis. The most probable is that there was a kinking of the ureter where it crossed the vas deferens. The urinary sepsis was not diagnosed during life, the condition being interpreted as due to an intestinal cancer; if this mistake, which occurs very often, had not been made, the vasectomy would not have been done and it probably would have been possible to prolong the patient's life by the timely use of a retention catheter or a cystotomy followed by prostatectomy. (Z).

Legueu, F.: The New Conception of Prostatic Disease (*El nuevo concepto de la enfermedad prostática*). *Arch. de med., cirug. y especial.*, 1922, vii, 5.

In prostatic disease the volume of the adenoma is not in direct proportion to the symptoms. Legueu has found that patients with no visible tumefaction are quickly relieved of their symptoms by the removal of a small amount of tissue which microscopically, in some cases, has the characteristics of an adenomatous growth. In a study of prostatic disease in a large series of cases one finds tumors ranging from 300 to 200 gm. which cause similar symptoms. In seventy-eight of 300 cases Legueu removed urethro-prostatic tissue weighing less than 15 gm. These cases he classifies into three groups as follows:

Group 1. Cases in which the tissue proved on microscopic examination to be a very small adenoma, so small that a careful physical examination could not detect its presence. This happened in the following case: A patient, 48 years old, experienced urinary retention first in August, 1916. The attack lasted one month. A second attack of about the same length occurred in February, 1917. A third attack, in July, 1917, lasted until October, 1917, when the patient was operated upon. The prostate was found slightly increased in volume; there was no stricture. Cystoscopy had not revealed any prostatic enlargement. The urethra was quite wide.

From deep in the prostatic tissue two small adenomata, having a total weight of 9 gm., were removed. The patient made a quick and complete recovery.

Group 2. Cases in which an adenoma could not be detected microscopically. The tissue is mixed with the hypertrophied muscular stroma. A man, 55 years old, complained of constant polyuria during the last year. For the previous two weeks he had had complete retention. Examination showed a distended bladder. Digital examination revealed a very small prostate. At operation 4 gm. of prostatic tissue were removed. Microscopic examination showed this to consist of a number of small adenomata.

Group 3. Cases in which no tumor was found even by microscopic examination. A characteristic case was that of a man 45 years old who had had complete retention for three months. Examinations of the prostate and bladder were negative. At operation a small lobule was found on the posterior aspect of the neck of the bladder. Tearing through the urethra, about 3 gm. of cervical tissue were removed with great difficulty. On microscopic examination this tissue proved to be of fibromuscular origin. The patient, who had suffered from dysuria for twenty years, is able to empty his bladder in two seconds.

These three groups of cases show the variations from the enlarged prostate with definite adenomata to the "prostatic without prostate," all with similar symptoms.

The author believes that in prostatic disease the neck of the bladder becomes rigid and loses its flexibility and elasticity; in other words, it loses the ability to open itself. Hence the abnormal micturition. These same alterations of the neck are found in cases with adenomata in which the mechanical obstruction is evident. For this reason Legueu removes the neck in all cases in the belief that the retention is due to its condition rather than to any other mechanical obstruction which may be present.

The mechanism of incomplete obstruction is still unknown.

Complete retention may be transitory or permanent. It is transitory in cases in which the changes at the neck are not sufficient to excite the inhibition reflex steadily. P. R. CASELLAS, M.D.

Young, H. H.: *The Technique of Prostatectomy and Its Relation to Mortality: Report of 165 Consecutive Cases of Perineal Prostatectomy without a Death.* *J. Am. M. Ass.*, 1922, lxxviii, 933.

Young's article deals with his development of the technique of perineal prostatectomy and answers those who object to this operation and advocate the suprapubic route.

Young first used the inverted V incision, abandoning the median incision of Alexander, in 1903. To prevent hæmorrhage and incontinence the prostate was exposed back of the external sphincter. With the use of a single-bladed tractor and an in-

verted V incision through the capsule, the prostate was removed in one piece. Later, by means of a double-bladed tractor and bilateral incisions, the lateral and middle lobes were removed. The ejaculatory ducts and urethra were preserved.

In 450 cases treated by this method there were only seventeen deaths. There was no incontinence, and injury to the rectum was rare. One of the deaths was due to vesical hæmorrhage. In eight fatal cases autopsy showed severe renal lesions. In three others, in which autopsy was not performed, there were renal symptoms.

Young adopted the inverted V incision in the capsule because occasionally small lobules were missed in the bilateral incisions, and because of the technical difficulty in removing the three lobes separately. The incision into the urethra exposed the floor, verumontanum, and ejaculatory ducts. The incisions having been carried as far back on each side of the urethra as the middle lobe, the urethra was there divided. The prostate was then removed in one piece. A study of these cases showed that healing was not so rapid, and in a few a stricture developed.

Young next tried a single lateral oblique incision made in the posterior surface near the left lateral margin and continued into the urethra. The urethra was opened widely on the left side. The left and median lobes were removed easily, but removal of the right lobe was difficult.

This technique was therefore modified by an incision almost parallel to the urethra and just external to the verumontanum and ducts on the left side. The prostatic urethra was widely opened. The mucous membrane along the inner surface of the right lobe was opened and the lateral lobes were freed with a blunt dissector and the index finger. The ejaculatory ducts and verumontanum being protected with the index finger, the mucous membrane covering the middle lobe was incised and the lobe freed. Enucleation was then completed and the prostate removed in one piece with the lobes free from mucous membrane. If a subregional lobe remained, it was excised, if necessary, with a curette, the tractor being removed and the index finger in the bladder bringing it into view.

The sphincter is usually intact, and the mucous membrane extends from the vesical neck into the prostatic cavity.

In some of the cases in which the prostate is fibrous and adherent the bilateral incision is more satisfactory.

In 166 consecutive cases treated during the past three years there were no deaths. Preliminary preparation and better technique are responsible for this improvement.

In conclusion two points are brought out:

1. Complete removal of the entire adenomatous prostate can be accomplished with complete preservation of important anatomical structures.

2. Visual inspection, the arrest of hæmorrhage by ligation or packing, dependent drainage, avoid-

ance of sepsis, the prevention of distention of the bowels, and a decrease in the mortality are favored by the lower operation. CLAUDE D. PICKRELL, M.D.

Hinman, F.: Suprapubic Versus Perineal Prostatectomy. *California State J. M.*, 1912, XI, 113.

This article is based on 133 cases in the author's practice. In Hinman's experience, Young's perineal prostatectomy excels the suprapubic operation in every respect. The mortality is lower (2.2 per cent as compared with 15 per cent) and its percentage of cures is higher (83 per cent as compared with 38 per cent).

In eighty-one consecutive unselected cases operated upon by the perineal route by Hinman there were no deaths and the results were successful. Recto-urethral fistulae, perineal fistulae, and incontinence have been absent in all of his later cases and in none were troublesome. In the longest period since operation, five years, there has been no recurrence of the prostatism.

Hinman believes that the generally poor results which have been reported for Young's perineal prostatectomy are directly attributable to inexperience of the operator rather than to the operation. Properly performed, Young's operation is an ideal surgical procedure. It presents, however, two technical difficulties—the anatomical approach and the glandular enucleation. Errors in the first lead to injuries of the rectum and external sphincter, while errors in the second cause structural defects with persistence of the prostatism or its recurrence.

The prevention of surgical errors in the anatomical approach comes through experience and a knowledge of the anatomy of the perineum. Structural defects may be prevented best by complete removal of the hyperplastic tissue. This can be done more certainly by the modified method of enucleation in which the mass is accurately dissected out intact under the direct control of the eye. In the twenty-five cases in which this perineal enucleation was done, the immediate and end-results were most gratifying, a functional cure having been obtained in all.

LOUIS GROSS, M.D.

MISCELLANEOUS

Helmholz, H. F., and Millikin, F.: The Bacteriology of the Normal Infant's Urine. *Am. J. Dis. Child.*, 1912, XVII, 309.

It has been rather generally accepted that the urine of normal infants frequently contains a small number of organisms that cannot be definitely excluded as a contamination. The work of Ross, of Helmholz and Beeler, and of Kleinschmidt and others substantiates this view. Recently the entire question was reopened by Langer and Soldin who claim that all previous work in which liquid media were not used for the isolation of bacteria is open to criticism. In a series of 138 cases they isolated streptococcus lactis 128 times, sixteen times with bacillus lactis aerogenes. Occasionally a single ex-

amination yielded a sterile urine, but on repetition bacteria were found.

The infants from whom the urine was taken for this study ranged in age from 6 weeks to 16 months. All had normal temperatures and were normal or nearly normal in weight. All were free from infection and disease as indicated by physical examination. Some of them were entirely breast fed, others were breast and bottle fed, and still others were fed entirely on artificial food.

All streptococci were subcultured in litmus milk. The streptococcus lactis was identified by the method of Hastings of the University of Wisconsin which is based on the fact that the lactococcus reduces the litmus before curdling the milk, while the other streptococci produce a pink curd in the milk without reducing the litmus.

The studies reported were carried out on thirty-five male and thirty-five female infants. The findings are grouped as follows:

1. All cultures negative. In this group there were thirty infants: seventeen females and thirteen males. It was possible to obtain enough urine for two specimens from only twenty-one. This group represents 40 per cent of the samples examined. In two-thirds of these the sterility of the urine was determined in duplicate on Specimens 1 and 2. If two specimens were obtained, only those in which all four were sterile are counted.

2. Cultures in solid media negative, in liquid media positive. There were eleven cases in this group, six those of females and five those of males. The importance of this group is paramount in disproving the contention of Langer and Soldin that liquid media are essential for this work, as in only 15 per cent did the use of such media make a difference.

3. Cultures in solid media positive, cultures in liquid media negative. Two of the three cultures in this group were unquestionable contaminations—the third, with two colonies of streptococci, may or may not be. In this group there were two males and one female.

4. All cultures positive. This group consisted of twenty-six infants, twelve females and fourteen males. In most instances all of the cultures showed growth, but occasionally one was negative. The number of bacteria to each cubic centimeter is of interest in that only six cases showed 100 or more organisms to each cubic centimeter of urine. Eight cases showed ten to 100 organisms to each cubic centimeter, and twelve showed less than ten colonies. In fourteen instances a strain of streptococcus was isolated from the urine; in six instances it was definitely identified as streptococcus lactis; in five instances it was not definitely identified; and in three instances it was identified definitely as not the lactis.

The error that creeps in through the constant danger of contamination even when all precautions are taken is such that the evidence obtained is always open to criticism. The authors state that the

masses of streptococci shown in the illustrations of Langer and Soldin as coming from the kidney must have remained in the urinary tract for a long time in order to have grown out into long chains. As it is not probable that organisms would grow so rapidly in the urine and would not grow in more favorable media, a more plausible interpretation is that they were washed in from the urethra and urethral opening and were essentially contaminations.

In conclusion it is stated that the urine of infants is sterile on culture in from one-third to one-half of the cases. The streptococcus lacticus is found in the urine of infants only exceptionally. The chances of contamination are so great that the presence of organisms in the urine does not prove without further control that they came from the kidney.

Belfield, W. T.: The Anatomy of Gonorrhœa in the Male: Principles of Treatment. J. Am. M. Ass., 1922, lxxvii, 1290.

The author gives an account of the evolution of the penis in vertebrates, pointing out its relationship to human pathology.

At one stage in the cycle of evolution when there are two distinct systems, one exclusively seminal and the other exclusively urinary, it is the seminal system which is more prone to gonococcal infection.

There are two types of defense against the gonococcus: the antimicrobial and the antitoxic. When invaded by the gonococcus the urethra exhibits the

first type and the seminal duct the second. The futility of antitoxin defense against gonococci in the vesicles is seen in gonorrhœal epididymitis. The antitoxin effect on infection in the vesicles is seen in a decrease of the urethral discharge at the height of the epididymal swelling, but when the swelling subsides, pus and gonococci again appear at the meatus as before.

When gonococci invade the vesicles every factor is unfavorable for local defense as the lining consists of two layers of cells, there is no flushing with urine and no drainage, and the vesicles are closed sacs emptied only by their own contractions. On the other hand, the vesicles are admirably adapted for local medication. During the last nine years the author has injected acutely infected vesicles through vas puncture in eighty-three cases, continuing the usual treatment of the urethra and prostate. In none of these has epididymitis or arthritis developed, and in only four have gonococci been found after a month's follow-up treatment of the urethra. In sixteen every sign of the disease vanished fourteen days after the injection.

The physician inexperienced in the procedure should perform the original open operation and thus avoid the common mistake of injecting the sheath of the vas instead of the lumen. In the treatment of acute gonorrhœa the vesicles are injected, not as a routine measure, but only when vesicular infection is demonstrated by the finger in the rectum.

FRANK HINMAN, M.D.

SURGERY OF THE EYE AND EAR

EYE

Payne, S. M.: Causes of the Loss of Vitreous Humor, Prolapse of the Iris, and Subsequent Membrane Formation in Cataract Extractions. *N. York M. J.*, 1922, *cxv*, 466.

This article deals with the causes due to faulty technique only. The author takes up each step of the cataract operation in brief as follows:

1. Vitreous humor may be lost as a result of frightening the patient with too many preliminary directions such as asking him to look up, down, to the right, to the left, etc.

2. Usually during manipulation the fixation forceps are passed from one hand to another, two hands thus manipulating the same forceps at one time. As a result of this manipulation too much pressure is easily brought to bear upon the eye and the lens ligament is ruptured.

3. After introducing the blade of the knife the operator often shifts his fingers and makes his counterpuncture too deep. This makes the section more difficult to cut, causes greater trauma to the iris, and produces greater pressure upon the eye, thus endangering the ligament.

4. The patient is made to look down after the section is made; this causes the wound to gap, and if there is irritation from too wide separation of the lids or clumsy manipulation of the cystotome, the ligament is apt to be ruptured.

5. The operator's eye is taken from the operated eye frequently to change instruments, etc.

6. Pressure on the lower part of the cornea is incorrectly made when the lens is removed.

7. At the first dressing the operator is so anxious to examine the wound that he directs the patient to look down and at the same time holds the upper lid up. This often causes the wound to gap, and at the second dressing a prolapse may be found.

In the author's opinion the formation of membranes is due to iritis following extraction, and the iritis is due to infection or to trauma during the operation.

THOMAS D. ALLEN, M.D.

Moutier, F., and Guérin, A.: The Bulbar Syndrome in Acute Intoxication Due to Intra-Orbital Injections of Cocaine (Le syndrome bulbaire dans l'intoxication aiguë par injections intra-orbitales de cocaïne). *Presse méd.*, *Par.*, 1922, *xx*, 335.

Cocaine has three principal effects: analgesic, stimulative, and vasoconstrictor. The authors discuss especially its action on the arterial pressure, respiration, the heart, and the nervous system.

After a temporary descent the arterial pressure rises and remains high. The pulse, which is at first accelerated, becomes intermittent as the dosage is

increased, and when very strong dosage is given the heart is arrested in systole. Under strong dosage respiration increases in frequency and decreases in amplitude.

The action of cocaine on the nerve centers is believed by some to be similar to that of chloroform and ether. Strong dosage causes a bulbar intoxication indicated by the appearance of vasoconstrictor, respiratory, and circulatory disturbances.

The clinical picture of cocaine intoxication, which develops about two to five minutes after the injection, is characterized by mental disturbance, delirium, agitation, and loquacity. The patient then shows anguish with a livid pallor of the face and hands and considerable acceleration of the pulse. At the same time various motor disturbances arise, from simple trembling to tetanic convulsions, with dilation of the pupils, vertigo, faintness, and respiratory disturbances. These signs indicate the action of the cocaine on the bulb and usher in collapse or syncope which may end in death. In favorable cases the phenomena recede by degrees and disappear after a day or two.

The author reports two clinical cases, the first that of a man of 38 years who was given an orbital injection of 1 c.cm. of 1:100 cocaine for the relief of severe suborbital neuralgia, the second that of a man of 32 years who was given an intra-orbital injection of 3 ctgm. of cocaine in 1 cm. of water. In both cases the successive phases of excitation, depression, and collapse were well marked and tachycardia persisted for several days.

The therapeutic agents to be employed in cocaine intoxication are oxygen and ether. The action of oxygen is clearly inferior to that of ether which, though of brief duration, is extremely rapid and complete. The dose should be repeated until 30 to 35 c.cm. is reached as in the second case cited by the authors. In this case the condition had been present for fifteen hours and the patient appeared as if on the point of death but recovery began after copious vomiting.

W. A. BRENNAN.

Harman, N. B., and MacDonald, P.: Detachment of the Retina Probably Due to Exposure to Light During an Eclipse. *Brit. M. J.*, 1922, *i*, 637.

The author's patient, a professional man, aged 54, viewed the eclipse on April 8, 1921, with the right eye, through a piece of cinematograph film and also through a tunnel formed by his hand. Half an hour after the exposure he saw sparks with that eye and on the next day this sensation was worse. Three days later he noticed that the sight of the right eye downward and toward the right was somewhat obscured. This also became worse. At examination made April 13 a large detachment was

found which, hanging down, obscured the disc and macula.

The patient refused operation and as the physicians were uncertain of the condition of the macula, it was not strongly urged. He was confined to bed for six weeks. Two days after he was first seen a few fine vitreous opacities were visible. By May 26 the vitreous was full of fine dust-like opacities; the detachment had practically recurred completely and in the macular region there was a small, hard, opaque elevation about the size of the disc. In time this became steadily smaller and there appeared glistening lines radiating from it to the remains of the detachment above. This sequence of events seemed to point to severe trauma of the macular region consequent on exposure to sunlight as the cause of the detachment. THOMAS D. ALLEN, M.D.

Coppes, H.: Lesions of the Optic Nerves Consecutive to Endonasal Affections (Note sur les lésions des nerfs optiques consécutives à des affections endonasales). *Bull. Acad. roy. de méd. de Belg.*, 1922, II, 58, 121.

According to the statistics of recent years, an endonasal condition is the causative factor in only 3 or 4 per cent of cases of retrobulbar neuritis, but as about 40 per cent of the cases are classed as of unknown origin, many of the latter may be due to an unrecognized or latent endonasal condition.

Coppes reports twelve cases which show that atrophy of the optic nerve may be of endonasal origin; that this etiology, obscure at first, is demonstrable diaphanoscopically and roentgenographically; and that early operation may cause an improvement in vision. The impression received from exploration in the course of operation is that an increase in the volume of the ethmoidal and sphenoidal bodies participates in the process, causing compression of the optic nerve. Another aggravating circumstance to which sufficient attention has not been directed is compression of the optic nerve by the ophthalmic artery. W. A. BRENNAN.

EAR

Renaud, M., and Arbellier, R.: The Frequency and Severity of Otitis and Suppurations of the Petrous Bone in Nurslings (Fréquence et gravité des otites et des suppurations du rocher chez les nourrissons). *Bull. Acad. de méd., Par.*, 1922, lxxxvii, 395.

When a diagnosis of otitis is delayed until pus is discharged from the auditory canal the disease is recognized in only about 8 per cent of nurslings in a children's clinic, but when detailed and repeated examinations are made and when tympanic punctures are carried out in all doubtful cases the condition is recognized more frequently. The authors found seventy-three cases of otitis in the examination of 102 nurslings and in every instance it was of a severe type. In the out-patient department of the hospital thirty-six cases of otitis were observed in 112 nurslings brought for various causes. The difference between the hospitalized and out-patient percentages is due to the fact that the children hospitalized were those in whom the disease was advanced. Of the twenty-nine admitted to the hospital in whom otitis was not found, twenty left the hospital in excellent condition and nine in fair condition, but of the seventy-three who had otitis, fifty-nine died and only fourteen were cured.

Otitis is extremely frequent in children and very often severe. Its frequency and gravity in nurslings places it in the front rank of children's diseases. Two deductions may be drawn. The first is that infection in the new-born plays an important if not an essential rôle in the etiology and that the point of origin of the infection is the nasopharynx. Of every ten nurslings brought to the clinic seven or eight are infected.

The second deduction is that, since localization of the infection in the ears is a tenacious complication with a grave prognosis and little tendency to spontaneous recovery, the ears should always be examined systematically when the symptoms are apparently early. W. A. BRENNAN.

SURGERY OF THE NOSE, THROAT, AND MOUTH

THROAT

Jackson, C.: Ventriclecordectomy: A New Operation for the Cure of Goitrous Paralytic Laryngeal Stenosis. *Arch Surg.*, 1922, IV, 517.

One of the results of goiter is a bilateral abductor laryngeal paralysis which results in dyspnea necessitating a tracheotomy.

In order to establish respiration through the larynx and enable the patient to discard the tracheotomy tube, the author has devised the operation of ventriclecordectomy, which consists in the endoscopic removal of the anterior portion of the cord with its supporting tissues. For successful results this procedure must be limited to cases totally free from cicatricial stenosis.

Recent onset of the bilateral abductor paralysis is a contra-indication because until a year has elapsed one cannot be sure that some degree of mobility will not reappear. If a low tracheotomy has been performed for the dyspnea resulting from the abductor paralysis, nothing will be lost by delay. If a faulty tracheotomy has been performed, a low tracheotomy should be done and the upper fistula allowed to close.

In the author's cases no anæsthetic was given to children; in the cases of adults cocaine was painted on with a swab and $\frac{1}{4}$ gr. of morphine was given an hour before the operation.

The larynx is exposed with the direct laryngoscope and through the latter the punch forceps is inserted. The ventricular band is elevated and the larynx applied from the median line laterally. The floor of the ventricle and part of the mucosa of its outer wall are removed at one clip. A clean cut is necessary. Great care is taken to avoid proceeding too far outward between the thyroid and cricoid cartilages lest the crico-arytenoideus lateralis be injured.

No after-treatment is necessary. One side is operated upon at a time, the second side about three weeks after the first.

The duration of the endoscopic part of the operation on one side only is never more than one minute. The method of determining when the tracheotomy tube can be dispensed with is thus described.

Decannulation is accomplished by the author's system of corking. When the laryngeal airway seems ample the partial corking of the cannula is begun. The use of ordinary corks of bark or rubber, which are friable, involves the risk of aspiration of fragments. A chemist's cork of good rubber, with a central perforation, is sometimes obtainable to fit an adult cannula, but for general use it is better to use what is known to the rubber trade as "pure cord" of suitable diameter, and

from this to grind a proper cork on an emery wheel. One side should be ground off flat or grooved to permit leakage of air past the cork to the desired degree. At the Bronchoscopic Clinic a half cork is usually employed at first. New corks are then made from time to time with less and less by-passage space until the whole cork, completely occluding the cannula, can be worn night and day. The cork is worn in the outer cannula and for convenience has a braided silk tether to prevent loss. With a proper cannula there is sufficient room around it in the trachea for the air to pass upward to the larynx without the very objectionable fenestrum. The cannula should not be abandoned until after the patient has been able to wear a full cork night and day for a month.

Seven case reports are added.

O. M. ROTZ, M.D.

MOUTH

Veau, V., and Lascombe, J.: The Treatment of Complex Bilateral Harelip (Traitement du bec de lièvre bilatéral complexe). *J. de chir.*, 1922, XIX, 113.

In the treatment of harelip the authors employ Jalaguier's technique, but they have made two modifications, viz., section of the osseous pedicle of the intermaxillary bone and preservation of the mucosa of the tubercle. The Jalaguier operation consists of a first stage in which the tubercle is pushed back and the soft parts are approximated, and a second stage in which the lip is reconstructed. The division of the operation into stages greatly reduces the operative shock and makes it possible to apply the procedure to much younger children.

In the first stage, section of the pedicle of the intermaxillary bone is the most important step. In the

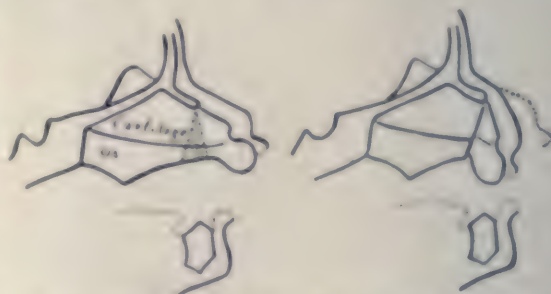


Fig. 1. Outline of gap in the nasal floor of an infant 3 months old with a complex bilateral harelip. Capsule resection of the vomer to show that after the tubercle has been pushed back the salient of the nose is effaced. This procedure should not be used.

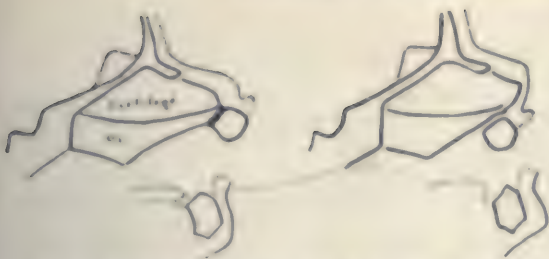


Fig. 2. Outline of a correct incision of the pedicle of the intermaxillary bone to show that after the reduction the salient of the nose is not changed.



Fig. 3. Reconstruction of the lip. Tracing of incisions.

authors' opinion, cuneiform section as done by Blandin and Mirault is to be condemned because it ruptures the arch of the vomer which forms the salient of the nose. Horizontal section of the neck of the intermaxillary bone is preferable. If the child is in good condition the second stage of the operation may be done two or three months after the first.

W. A. BRENNAN.

New, G. B., and Figg, F. A.: Actinomycosis of the Tongue. *Am. J. M. Sc.*, 1922, cxviii, 507.

Of 127 patients with actinomycosis examined at the Mayo Clinic from January 1, 1910, to January 1, 1921, the disease occurred in the head and neck in sixty-three, and in three of these it occurred primarily in the tongue.

Bollinger (1877) recognized actinomycosis as a pathologic entity. Harz named the organism the "ray fungus" or "actinomyces." Israel, in 1878, recognized the organism as the cause of the disease in man.

Actinomycosis rarely occurs primarily in the tongue, although this organ is undoubtedly more often involved than is indicated by the authors'

data. Four hundred and thirty-seven tumors of the tongue, of all types, have been examined at the Mayo Clinic. Of these, 300 were malignant, 100 benign, and thirty-seven inflammatory. The three cases of actinomycosis of the tongue constituted 0.7 per cent of the entire number.

Actinomycosis is common among cattle and hogs. Claus estimates the incidence of the condition of the tongue in cattle as 20 per cent of all actinomycotic infections, and Leclerc gives it as 18 per cent. Von Hollandt notes that 5 per cent of the tongues of slaughtered hogs show definite, encapsulated actinomycotic nodules. It seems logical to attribute the more frequent occurrence of the infection in animals as compared with man to the fact that animals come into more direct contact with the infectious material in grains and grasses.

Bostroem was able to demonstrate foreign bodies within the nodules in nearly all of the recent cases. That foreign bodies may not be the only source of infection is quite evident since the fungus has been demonstrated in the cavities of carious teeth in healthy persons and the tongue is exposed to injury by such teeth.

Thirty-five cases of primary actinomycosis of the tongue were collected from the literature. Twenty-seven were those of males and ten those of females. In one case report no data were given. Actinomycosis occurs as a rule in adults. Only one case has been observed in which it was found in a person under 20 years of age.

The condition is more common in farmers and persons whose rural life exposes them to infection. Records of the occupations of twenty-seven patients show that fifteen (53+per cent) were connected with rural life, and thirteen (46+per cent) were not connected with rural life.

The clinical history of actinomycosis of the tongue varies in different cases. As a rule there is a single nodule from 1 to 1.5 cm. in diameter in the anterior half of the tongue, often near the tip. The condition may be acute in onset with severe pain, throbbing, local tenderness, general malaise, and elevation of the temperature. It may develop insidiously during the course of several months or even three or four years. Enlargement of the regional lymph nodes has been observed, but in these only staphylococci, never actinomyces, have been found.

The diagnosis must be based on the clinical picture and confirmed by microscopic examination. It is best to excise the entire nodule for diagnosis. Grossly, the lesion must be distinguished from tertiary syphilis, tuberculosis, epithelioma, inflammatory cyst, and fibroma.

Pathologically, a small nodule enclosed in a fibrous capsule will usually be found near the dorsum of the tongue unless the whole thickness is involved. The nodule often becomes infected secondarily with abscess formation. The overlying mucous membrane may appear normal, yellowish, or elevated and tense. It rarely ulcerates.

The treatment is medical and surgical. Injections of various antiseptics have been given with benefit. Potassium iodide internally is of definite value, but incision or spontaneous rupture followed by the administration of potassium iodide produced much more rapid and satisfactory results. Surgical treatment alone or combined with medical treatment seems to be the rational procedure. In the authors' cases excision with primary suture was done. This is the treatment of choice when a discrete isolated nodule is present. If the abscess is too large for excision, drainage with or without curettage is advisable. Daily swabbing of the wound with tincture of iodine, packing with iodoform gauze, the administration of large doses of potassium iodide, and the use of radium, as employed in the Mayo Clinic in all cases of actinomycosis of the head and neck, are of distinct benefit.

The prognosis varies with the stage of the process and the clinical picture at the time of the examination. It is most favorable in cases in which a small nodule is found near the tip of the tongue and less favorable when the nodule is near the base of the tongue, or a diffuse abscess is present.

FRENCH K. HANSEL, M.D.

Veau, V.: The Anatomical and Functional Results of Staphylorrhaphy (*Les résultats anatomiques et fonctionnels de la staphylorrhaphie*). *Bull. et mém. Soc. de chir. de Par.*, 1920, xlviii, 357.

The author gives the statistics of the staphylorrhaphies performed in a children's hospital during a period of eleven years. Of seventy-seven such cases forty were operated upon by Jalaguier and thirty-seven by Veau. Thirty-seven of the cases (48 per cent) in which a single operation was done for palatal division have been completely cured. Many of these children had a median orifice at the juncture of the palatal vault and velum which closed spontaneously after cauterization. In twenty-seven cases (36 per cent) there was partial disunion,

and in the majority this was in front of the velum. In twelve cases (15 per cent) there was total disunion.

There was only one case of postoperative death. The cause of this was infection. The statistics reported by others give the incidence of complete cure of the defect as from 48 to 85 per cent.

Among the cases not cured by the first operation the breach in many instances was closed by a second operation. Thirteen children were cured after two operations, three after three, and three after four operations. The final results were a complete anatomical cure in 74 per cent of the cases, an incomplete cure in 13 per cent, and a total failure in 3 per cent.

While the results may be good as far as the surgery is concerned, the functional results are poor. Forty of the cases operated upon have been traced and examined. In only one of four is there a long and mobile velum. In ten cases (25 per cent) improvement in speech occurred either immediately or within a period of six months of phonetic education, and in 15 per cent it became apparent after a longer period. In 60 per cent there was no improvement.

All of the children who have shown no improvement after operation have a short, thin, and immobile velum.

The author finds that when Trélat's method is used cicatricial retraction is constant. This is an important cause of palatal insufficiency, and is the more marked the less mobile the velum.

The following rules for a good staphylorrhaphy are given:

1. Do not leave any bleeding surface in the upper nasal portion of the reconstructed palate.
2. Preserve all of the contractile elements by avoiding section of muscular fibers. If the muscles pull, make the sutures stronger to resist the tension. To this end pass silver wire horizontally in the depths of the velum.

W. A. BRENNAN.

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

- Drainage. J. A. BLAKE. *Ann. Surg.*, 1922, lxxv, 385.
Some notes on plastic operations. L. ELOESSER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 532. [98]
The application of fascia lata in plastic surgery. C. H. CUFF. *Brit. M. J.*, 1922, i, 599. [98]
Pedicled flaps aided by free fat transplantation. W. VAN HOOK. *Med. Rec.*, 1922, ci, 625. [99]
A successful skin graft with a slight modification of the Reverdin method. F. WEHLE. *Med. Rec.*, 1922, ci, 587.
A case of death following cauterizing for adhesions by Jacobaeus' method. W. HOLMBOE. *Norsk. Mag. f. Lægevidensk.*, 1922, lxxviii, 16.

Aseptic and Antiseptic Surgery

- Aim and method of chemotherapeutic antiseptics. J. MORGENTHAU. *Klin. Wchnschr.*, 1922, i, 353.
Practical suggestions for stricter cleanliness in surgery. S. LEECH. *Virginia M. Month.*, 1922, xlix, 1.
Shall we use iodine in the treatment of wounds? A. W. COLCORD. *Internat. J. Surg.*, 1922, xxxv, 117.

Anæsthesia

- Present status of anæsthesia as a specialty. J. E. LUMBARD. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 34.
Some observations on the value of pre-operative treatment for the surgical patient in relation to anæsthesia. W. J. DEFRIES. *Canadian Pract.*, 1922, xlvii, 134.
General anæsthesia. W. E. HANDLEY. *J. Missouri State M. Ass.*, 1922, xix, 159.
Anæsthesia and analgesia. COSTAIN. *J. Am. Inst. Homœop.*, 1922, xiv, 644.
A universal anæsthesia inhaler. C. H. SANFORD. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 37.
Lessons from anæsthetic accidents and near fatalities. R. M. WATERS. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 57.
Some observations on post-anæsthetic complications. G. F. R. SMITH. *Brit. M. J.*, 1922, i, 513.
Surgical anæsthesia in relation to diabetes mellitus. R. FITZ. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 46.

Some studies of the blood before and after etherization by the drop method. M. G. DAY. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 53.

A study of anurias in normal animals under ether and chloroform anæsthesia. W. DEB. MACNIDER. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 42.

Paroxysmal tachycardia as an occasional upset during ether administration. S. A. LEVINE. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 48.

Utility and limitations of nitrous oxide anæsthesia. FLEMING, BARTON, BOYLE, CHALDECOTT, PAGE, and SHIPWAY. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, *Sect. Anæst.*, 7.

Massage of the head during chloroform syncope. GAUTHIER. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 255.

Concerning a case of death from ethyl-chloride intoxication. A. H. HOFMANN. *Muenchen. med. Wchnschr.*, 1922, lxix, 159.

The handling of the toxic goiter under ether-oil colonic anæsthesia. G. K. DICKINSON. *Am. J. Surg.*, 1922, xxxvi, *Anæst. Supp.*, 40.

The indications for, and the dangers in the use of, spinal anæsthesia in obstetrics, gynecology, and abdominal surgery. R. R. HUGGINS. *Am. J. Obst. & Gynec.*, 1922, iii, 412.

Posterior resection of the rectum and rectosigmoid (Kraske or modified) under regional anæsthesia. G. L. LABAT. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 134. [99]

Some aspects of the local anæsthesia problem. R. E. FARR. *Wisconsin, M. J.*, 1922, xx, 547.

A new local anæsthetic for nose and throat work. A. E. BULSON, JR. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 131.

Local anæsthesia ideal for inguinal hernioplasty. L. E. LIKER. *Am. J. Surg.*, 1922, xxxvi, 81.

Surgical Instruments and Apparatus

The nasopharyngeal compressor in hæmostasis of the nasopharynx. L. SAMENGO. *Semana méd.*, 1922, xxix, 409.

Valentine Mott's aneurism needle for ligation of the innominate and subclavian arteries. A. H. G. DORAN. *Brit. M. J.*, 1922, ii, 639.

SURGERY OF THE HEAD AND NECK

Head

- A case of incomplete scalp. L. SILVESTRINI. *Gazz. internaz. di med. prat.*, 1922, xxvii, 3.
Universal craniotomy. G. ZORRAQUH. *J. de chir.*, 1922, xix, 348. [100]
The management of acute cranial injuries by the early, exact determination of intracranial pressure, and its relief

by lumbar drainage. H. JACKSON. *Surg., Gynec. & Obst.*, 1922, xxxiv, 494. [100]

Operative indications and contra indications in epilepsy following cranial injuries. MARQUIS and ROGER. *Arch. franco-belges de chir.*, 1922, xxx, 560.

Diffuse cranial osteomyelitis as a sequela to nasal accessory sinus suppuration. G. A. D. MCARTHUR. *Med. J. Australia*, 1922, i, 410.

The significance of brain puncture and lumbar puncture in the diagnosis and prognosis of brain abscess. W. RINDFLEISCH. *Deutsche med. Wchnschr.*, 1922, xlviii, 779. [100]

Cerebral abscess of otitic origin; report of a case. J. V. F. CLAY. *Hahnemann Month.*, 1922, [vii], 171.

Tumor of the brain following injury to the head. LEWISINE. *Austral. Surg. J.*, 1922, xviii, 75.

A case of epilepsy of twenty-two years' standing due to a calcified endothelioma of perithelioma in the left lateral ventricle: removal and recovery. J. LYNN THOMAS. *Brit. J. Surg.*, 1922, ix, 402. [101]

The results of fifty trephinations of the skull in epilepsy. VOGLAND. *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1922, lxxv, 205. [101]

Observations on lateral sinus thrombosis following mastoiditis with report of cases. J. MCCOY. *Laryngoscope*, 1922, xxxii, 197.

A plastic procedure for stopping hemorrhage in injuries to the sinus durae matris. A. TSCHUGAJEFF. *Wratschbo Dnebo*, 1921, iii, 28.

The surgical treatment of trigeminal neuralgia. A. G. REINER. *Virginia M. Month.*, 1922, xlix, 33.

The so-called mixed tumors of the parotid. A. C. MARRASIA and R. S. MCCRAID. *J. Laryng.*, 1922, n. s. xlii, 195.

Differential diagnosis of salivary calculus. W. BOSS. *Beitr. z. klin. Chir.*, 1922, cxxv, 431.

The covering of large palatal defects due to gunshot injuries by means of pedicled skin flaps taken from the forehead and having an epithelial covering on both sides. H. RIEDERMANN. *Beitr. z. klin. Chir.*, 1922, cxxv, 444. [102]

Endothelial tumors of the maxillary sinus. R. MOSTI. *Policlin.*, Rome, 1922, xxx, sec. chir., 134.

Fibrosarcoma of the upper jaw, carcinoma of the cheek; a case report. J. G. SHERKILL. *Kentucky M. J.*, 1922, xx, 284.

Submaxillitis in the course of radium application for buccal cancer. COUDAMIN. *Lyon chirurg.*, 1922, xix, 102.

The surgical treatment of habitual luxation of the mandible, a new operative technique. G. E. KONJETZNY. *Arch. f. klin. Chir.*, 1921, cxvi, 681. [102]

Regeneration of the lower jaw. R. H. IVY. *Ann. Surg.*, 1922, lxxv, 203.

Cicatricial ankylosis of the jaw. J. H. JORSON and R. H. IVY. *Ann. Surg.*, 1922, lxxv, 203.

Reconstruction of the upper lip of women. L. DUFOUR-MENTIL. *Presse méd.*, Par., 1922, xxx, 344. [102]

Neck

Thyroid function from a chemical viewpoint. A. I. CAMERON. *Canadian M. Ass. J.*, 1922, xli, 212.

A contribution to the prophylaxis of goiter. M. MANSERLE. *Rev. méd. de la Suisse Rom.*, 1922, xlii, 176.

A review of a year's thyroid work. F. H. LARLEY. *Boston M. & S. J.*, 1922, clxxvi, 185. [103]

Some observations on the thyroid gland. I. G. COHN. *N. York M. J.*, 1922, cxv, 477.

Relationship between histological structure and biological activities of goiter tissue. F. DE QUERVAIN. *Swiss. Z. Gynec. & Obst.*, 1922, xxxiv, 313.

The lighter forms of hyperthyroidism, a comparative clinical and pathologic-anatomical study. A. HALLWALL. *Beitr. z. klin. Chir.*, 1922, cxxv, 75. [103]

Control of so-called hyperthyroidism by digitalis and water. G. W. CRILE. *N. York M. J.*, 1922, cxv, 379.

Goiter. S. PERN. *N. York M. J.*, 1922, cxv, 399.

Simple goiter. R. MCCARRISON. *Brit. M. J.*, 1922, ii, 636.

A case of retrosternal goiter. A. L. MOLNAR. *Klin. Wchnschr.*, 1922, i, 420.

The pathology, diagnosis, and surgical treatment of goiter. E. GOETSCH. *Northwest Med.*, 1922, xxi, 27.

The technique of operation for goiter. H. SCHLOFFER. *Beitr. z. klin. Chir.*, 1922, cxxv, 249.

Goiter surgery. F. J. PLONDRE. *Minnesota Med.*, 1922, v, 220.

Toxic goiter. E. M. EBERTS. *Canadian M. Ass. J.*, 1922, xli, 219.

The surgical management of toxic goiters. J. D. J. PEMBERTON. *Chicago M. Rec.*, 1922, xlv, 121.

Exophthalmic goiter, the problem of recovery. I. BRAM. *Med. Rec.*, 1922, cl, 571.

Exophthalmic goiter: death from bilateral femoral thrombosis and gangrene. W. G. SPENCER. *Brit. J. Surg.*, 1922, ix, 566.

Technique of operation for goiter to improve postoperative cosmetics. J. HURST. *Northwest Med.*, 1922, xxi, 191.

Question of drainage following thyroidectomy. C. VIDAKOVITS. *Zentralbl. f. Chir.*, 1922, xlv, 177.

Transitory paralysis of the recurrent nerve after goiter operations. L. BÉRAUD. *Lyon chirurg.*, 1922, xix, 1.

The probable function of the parathyroid glands. F. S. HAMMETT. *N. York M. J.*, 1922, cxv, 401.

A report of a case of parathyroid insufficiency. A. F. HURST. *N. York M. J.*, 1922, cxv, 403.

Tumor of the carotid gland. DECARPENTHIS. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 245.

SURGERY OF THE CHEST

Chest Wall and Breast

The diagnosis and treatment of tuberculous empyema. C. A. HEDRUM. *Surg., Gynec. & Obst.*, 1922, xxxiv, 445. [104]

The modern treatment of empyema. G. CSÁKANYI. *Orvostudok*, 1922, xl, 298.

The non-operative treatment of chronic empyema. J. H. GORDON. *Am. J. M. Sc.*, 1922, clxiii, 469.

Fissures of the sternum and their origin. A. SZENIA. *Arch. f. klin. Chir.*, 1922, cxix, 116. [105]

On pectoral mammary hypertrophy. D. M. GREIG. *Edinburgh M. J.*, 1922, n. s. xlviii, 153. [105]

Pathology of the mammary glands in the male, with particular consideration of the stroma. N. KUDJI. *Stuttgart. Kernen*, 1922.

Diseases of the mammary gland in the male. J. SHERILL. *Arch. f. klin. Chir.*, 1922, cxix, 169. [106]

A further report on traumatic fat necrosis of the female breast and its differentiation from carcinoma: three additional cases. B. J. LEE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 521. [107]

Conditions resulting from postperal mastitis: their diagnosis and treatment. L. NIEBERBERGER. *Deutsche med. Wchnschr.*, 1922, xlviii, 354.

Trachea and Lungs

Intubation vs. tracheotomy. J. M. ROGERS. *Canadian M. Ass. J.*, 1922, xli, 228.

Transverse tracheotomy. A. BINGLER. *Med. Klin.*, 1922, xviii, 357.

A perinephritic cold abscess opening into the bronchi in the course of renal tuberculosis. C. ROCHIER. *J. d'urolog. méd. et chir.*, 1922, xiii, 193.

An uncommon case of a foreign body in the respiratory passages; perforation of the aorta. N. R. CHRISTOFFERSEN. *Ugeskr. f. Læger*, 1921, lxxxiii, 971.

A contribution to the clinical study of circumscribed suppurations of the lungs: abscess and gangrene. C. RAHGENFUEHRER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1921, xxviii, 97. [107]

Pulmonary abscess: an analysis of 302 cases following operative work about the upper respiratory passages. W. F. MOORE. *J. Am. M. Ass.*, 1922, lxxviii, 1279.

Five cases of pulmonary echinococcosis. G. B. GIROTTI. *Riforma med.*, 1922, xxxviii, 272.

Pulmonary echinococcosis. A. CORVETTO. *Crón. méd.*, 1922, xxxix, 4.

Surgical treatment of pulmonary tuberculosis. L. BRAUER. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1921, 191.

Carcinoma of the lung. E. A. GUMMIG. *Med. Herald*, 1922, xli, 113.

A case of primary carcinoma of the lung. F. J. DEVER and C. E. ROYCE. *Pennsylvania M. J.*, 1922, xxv, 545.

A case of carcinoma of the lung of unusual duration. A. J. S. FISCHER. *Lancet*, 1922, ccii, 792.

The alveolar and blood gas changes following pneumectomy. G. J. HEUER and W. D. W. ANDRUS. *Bull. Johns Hopkins Hosp.*, 1922, xxviii, 130.

Pharynx and Esophagus

A needle in the posterior wall of the hypopharynx for six weeks. R. N. SMITH and H. P. PRICE. *J. Am. M. Ass.*, 1922, lxxviii, 1050.

A case of cancer in the hypopharynx. N. ARNOLDSON. *Hygiea*, 1921, lxxviii, 619, 644.

Sarcoma of the lower pharynx treated by X-rays: disappearance of the growth. D. MCKENZIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 28.

Unsuspected foreign bodies in the air passages and esophagus. C. E. PURCELL. *Laryngoscope*, 1922, xxxii, 229.

Contributions to the removal of foreign bodies from the esophagus and trachea. H. J. L. STRUYCKEN. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 289.

Considerations regarding diffuse dilatation of the esophagus. L. URRUTIA. *Arch. de med., cirug. y especial.*, 1922, vii, 118.

Permanent dilatation of the esophagus with intermittent obliteration of the cardia. TUFFIER. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 413.

Esophagoplasty: technique and results. P. FRANGENHEIM. *Muenchen. med. Wchnschr.*, 1922, lxix, 303.

Further contributions on resection of the esophagus. W. LEVY. *Arch. f. klin. Chir.*, 1922, cxix, 20.

A pedunculated lipoma of the esophagus. P. P. VINSON. *J. Am. M. Ass.*, 1922, lxxviii, 801. [108]

Carcinoma of the esophagus perforating into the trachea at the bifurcation; report of a case and demonstration of the specimen. H. V. FORSTER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 17.

Miscellaneous

Some observations on surgery of the chest during twenty-six months in the military service. J. C. MOTLEY. *Virginia M. Month.*, 1922, xlix, 30.

Penetrating gunshot wound of the chest with retention of the projectile in the anterior mediastinum for twenty-seven days. P. BARBIERI. *Semana méd.*, 1922, xxix, 497.

A mechanism maintaining the negative pressure of the pleura and influencing absorption. T. W. WADSWORTH. *J. Path. & Bacteriol.*, 1922, xxv, 266.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Inguinal hernia: their varieties, mode of origin, and classification. R. H. RUSSELL. *Brit. J. Surg.*, 1922, ix, 502.

Recurrent inguinal hernia. C. H. WATT. *J. Med. Ass. Georgia*, 1922, xl, 131.

A method of dealing with intestinal loops densely adherent to an inguinal hernia. O. C. COX. *J. Am. M. Ass.*, 1922, lxxviii, 1113. [108]

Kummer's operation for femoral hernia. K. RESCHKE. *Deutsche Ztschr. f. Chir.*, 1922, clxviii, 91.

Traumatic and industrial hernia. W. B. COLEY, S. LEISH, J. B. WALKER, C. W. HOPKINS, and J. A. HUTCHISON. *Ann. Surg.*, 1922, lxxv, 467. [109]

Mobilization of the sartorius as a myoplastic method in operations for abdominal hernia. O. RAMLAU-HANSEN. *Hosp.-Tid.*, 1922, lxx, 33. [109]

The treatment of umbilical and other ventral hernia by closure of the ring with bronze wire. P. MOURE. *J. de chir.*, 1922, xiv, 359. [110]

Recurrence of hernia. H. R. OWEN. *Pennsylvania M. J.*, 1922, xxv, 428.

The treatment of hernia. G. P. GRIGSBY. *Kentucky M. J.*, 1922, xv, 246.

Pneumococcus peritonitis. V. F. MARSHALL. *J. Iowa State M. Soc.*, 1922, xii, 138. [110]

Pneumococcal peritonitis. J. E. MCCARTNEY and J. FRASER. *Brit. J. Surg.*, 1922, ix, 479.

A case of acute peritonitis after radium treatment of a fibroma of the uterus. MOLIN. *Lyon chirurg.*, 1922, xix, 99.

Biliary peritonitis. F. WAGNER. *Deutsche Ztschr. f. Chir.*, 1922, clxviii, 116. [110]

The pathology and treatment of peritonitis. W. LATZKO. *Wien. med. Wchnschr.*, 1921, lxxi, 1913, 1967, 2115. [111]

Gastro-Intestinal Tract

Gastrolabyrinthic and labyrinthogastric reflectivity. A. ROCCAVILLA. *Riforma med.*, 1922, xxxviii, 340.

The nervous control of the pyloric sphincter. J. E. THOMAS and H. WHEELON. *J. Lab. & Clin. Med.*, 1922, vii, 375.

Pyloric stenosis in nurslings. H. HARTMANN. *Gynéc. et obst.*, 1922, v, 307.

Chronic diseases of the stomach. R. EHRSTROM. *Acta med. Scand.*, 1922, lvi, 461.

Gastric hemorrhage. G. E. ARMSTRONG. *Surg., Gynec. & Obst.*, 1922, xxxiv, 466.

The modern medical treatment of gastric ulcer. F. CONLIN. *Nebraska State M. J.*, 1922, vii, 113. [111]

Observations on the curability of gastric ulcer: with a report of fourteen cases of healed lesser curvature ulcers. J. S. DIAMOND. *Am. J. M. Sc.*, 1922, clxiii, 548.

The treatment of gastric ulcer. W. WHITE. *Chicago M. Rec.*, 1922, xlv, 147.

The more usual operative methods in the treatment of stomach ulcer. H. VON HARBERT. *Med. Heral.*, 1922, 253, 344.

The treatment of perforated gastric and duodenal ulcer. A. H. SOUTHWELL. *Brit. M. J.*, 1922, i, 336.

Marginal and jejunal ulcers following gastro-enterostomy. F. C. SCHULTZ. *Minnesota Med.*, 1922, 9, 243.

Temporary gastrotomy in ulcers of the body of the stomach. P. SARTY. *Lyon chir.*, 1922, xix, 93.

The peptic ulcer with a review of twelve months' surgical treatment (1921). K. W. MONSARRAT. *Brit. M. J.*, 1922, i, 333.

Gastric surgery simplified by jejunostomy. K. S. J. HOLDS. *Med. Heral.*, 1922, xli, 100.

Apparent and real disturbances caused by correctly executed gastro-enterostomy for gastroduodenal ulcers. P. EICHENBERG. *Rev. Ass. med. argent.*, 1921, xxiv, 1736.

Gastrojejunostomy for perforated gastric and duodenal ulcer. C. P. CHILSE. *Brit. M. J.*, 1922, i, 696.

Venous thrombosis and gastric carcinoma. T. G. MOOREHEAD. *Practitioner*, 1922, cxviii, 242. [112]

A study of sixty-five cases seeking relief after short-circuiting operations. E. I. SPRINGS and O. A. MARAER. *Lancet*, 1922, cxli, 705. [112]

Volvulus of the intestine. ZAHRADECKY. *Časop. lékař.*, 1922, lvi, 69.

A contribution to the clinical study of sliding hernia. R. DIEMEL. *Deutsche Zuchr. f. Chir.*, 1922, cxviii, 51.

Stenosis of the intestines. SCHNITZER. *Wien. med. Wechschr.*, 1922, lxxvii, 175. [113]

Letal factors in acute ileus. F. T. VAN BLUREN. *Ann. Surg.*, 1922, lxxv, 423. [113]

Observations on the work of E. Makai: the question of so-called ulcer simplex of the intestines. A. W. FISCHER. *Zentralbl. f. Chir.*, 1922, xlix, 166.

Retrograde invagination of the small intestine following gastro-enterostomy. L. AERNSPERGER. *Zentralbl. f. Chir.*, 1922, xlix, 192.

Autosterilization of the small intestine. GASTER and VAN DER REIS. *Verhandl. d. deutsch. Gesellsch. f. inn. Med.*, 1921, 475.

Strictures of the small intestine and pernicious anemia; a few remarks on the intestinal flora. F. MEULENGRACHT. *Acta med. Scand.*, 1922, lvi, 432.

Multiple papillomata of the small intestine causing recurrent intussusception in an adult. Z. COPE. *Brit. J. Surg.*, 1922, ix, 114.

A case of adenocarcinoma of the small intestine in a youth of 20; perforation and death. J. A. C. MACLEWEN. *Lancet*, 1922, cxli, 693.

Operative evacuation of the intestines in mechanical and paralytic ileus. H. BOLT. *Beitr. z. klin. Chir.*, 1922, cxv, 476.

A foreign body in the duodenum. G. VILVANDRE. *Arch. Radiol. & Electrotherapy*, 1922, xxvi, 349.

Congenital obstruction of the duodenum: report of a case. C. H. SCHROEDER. *J. Am. M. Ass.*, 1922, lxxviii, 1919. [114]

Chronic duodenal stenosis. H. MEYER. *Klin. Wechschr.*, 1922, i, 120.

The co-existence of a stenosis of the third portion of the duodenum due to mesenteric compression and an ulcer of the first or second portion. P. DUYVAL and A. BASSET. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 391. [114]

Bleeding ulcer of the duodenum associated with cholecystitis. E. S. JUDS. *Ann. Surg.*, 1922, lxxv, 459. [115]

Duodenal ulcer and cholecystitis. W. T. VAUGHAN. *Virginia M. Month.*, 1922, xlii, 34.

Acute perforation of duodenal ulcer. G. H. BUNCIE. *Virginia M. Month.*, 1922, xlii, 27.

A contribution to the etiology of peptic jejunal ulcer. T. BEER. *Zentralbl. f. Chir.*, 1922, xlix, 282.

A proposal for the operation of postoperative jejunal ulcer. H. ALAPY. *Zentralbl. f. Chir.*, 1922, xlix, 273.

Jejunostomy: technique and indications for the operation. A. I. MCKINSON. *Med. Heral.*, 1922, xli, 199.

The treatment of fecal incontinence. DUTCHER. *Am. J. Clin. Med.*, 1922, xlix, 267.

Hirschsprung's disease, with report of one case. L. RASHEUR. *J. Missouri State M. Ass.*, 1922, xix, 139.

Two cases of idiopathic dilatation of the colon in adults. R. M. BRATH. *Arch. Radiol. & Electrotherapy*, 1922, xxvi, 169.

Embryology and physiology of colonic stasis. G. E. ARMSTRONG. *Canadian M. Ass. J.*, 1922, xli, 107.

Intestinal occlusion due to tuberculous peritonitis. A. G. GALLO. *Semana med.*, 1922, xlix, 341.

A case report—mucous colitis due to partial intestinal obstruction. H. N. LEAVELL. *Kentucky M. J.*, 1922, ix, 265.

A case of intestinal occlusion by kink and torsion of the ascending colon. DIONIS DU SPOUR. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 282.

The cause of death in high intestinal obstruction. J. W. ELLIS. *Ann. Surg.*, 1922, lxxv, 429. [115]

Primary colectomy for acute intestinal obstruction in a patient aged 70. C. L. G. CHAPMAN. *Brit. M. J.*, 1922, i, 516.

Repeated abdominal section for intestinal obstruction, with some unusual features. A. H. BURGESS. *Brit. J. Surg.*, 1922, ix, 573.

Hemorrhagic colitis. J. A. HAYWARD and T. MAC-CARTHY. *Brit. M. J.*, 1922, i, 560.

Report of a case of intestinal obstruction due to diverticulum and accessory pancreas. C. JOHNSON. *Texas State J. M.*, 1922, xvii, 579.

Surgery of the large intestine. S. GRASSO. *Policlin.*, Rome, 1922, xxix, sez. prat., 516.

Colectomy for extensive cancer of the colon. P. MATHIEU. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 293.

Results of colectomy in chronic intestinal stasis. V. PAUCHET. *Med. Press*, 1922, n. s. cxlii, 335.

Torsion of the caecum and ascending colon. E. K. TANNER. *J. Am. M. Ass.*, 1922, lxxviii, 1125.

The surgery of the right bowel. F. N. G. STARR. *Surg., Gynec. & Obst.*, 1922, xxxiv, 547.

Significance, function, and results of acute pericardial and pericaecal masses in relation to operative indications. O. CIGNOZZI. *Policlin.*, Rome, 1922, xxix, sez. chir., 219.

The acute appendix. W. JAMIESON. *Canadian M. Ass. J.*, 1922, xli, 232.

Acute appendicitis. C. D. HOY. *Ohio State M. J.*, 1922, xviii, 264.

The rôle of sex in the etiology of appendicitis. W. BACKMAN. *Acta med. Scand.*, 1922, lvi, 478.

The treatment of appendicitis. L. URRUTIA. *Arch. de med. chir. y especial.*, 1922, vii, 660.

Three cases of appendectomy. S. SCHLIAND. *Riforma med.*, 1922, xxxviii, 337.

Inversion of the vermiform appendix. A. EVANS. *Brit. J. Surg.*, 1922, ix, 264.

Invagination of the vermiform appendix. A. H. HORMANN. *Zentralbl. f. Chir.*, 1922, xlix, 299.

The surgery of caecal tumors. A. H. HORMANN. *Arch. f. klin. Chir.*, 1922, cxv, 414.

The surgical pathology of the transverse mesocolon. E. HENSE. *Verhandl. d. chir. Pflugsch-Ges.*, Petrograd, 1922.

Recto-sigmoidal prescissoidal invagination; disinvagination after laparotomy. MARAISE. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 239.

Removal of glass from the rectum. A. A. LANDSMAN. *J. Am. M. Ass.*, 1922, lxxviii, 965.

The treatment of incomplete prolapse of the rectum. C. J. DRUECK. *Internat. J. Surg.*, 1922, xxxv, 122.

Total prolapse of the rectum; perfect recovery after total resection of mucosa, folding of the muscular layer, and stricture of the anal orifice. E. JUVARA. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 366.

The significance of sacrococcygeal dermoids in relation to rectal diseases. A. P. STONER. *J. Iowa State M. Soc.*, 1922, xii, 145.

Rectal packing. W. F. BURROWS and E. C. BURROWS. *J. Am. M. Ass.*, 1922, lxxviii, 1293.

Carcinoma recti—case report. S. C. MCCOY. *Kentucky M. J.*, 1922, xi, 163.

Operating cystoscope in the application of radium to cancer of the rectum following colostomy. J. O. BOWER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 539.

Contributions to the surgery of the rectum. A report on the carcinomata of the rectum treated in the Breslau clinic. E. EICHBOFF. *Beitr. z. klin. Chir.*, 1922, cxxv, 17. [116]

Anal fissure and its treatment. L. E. MOON. *Nebraska State M. J.*, 1922, vii, 131. [118]

A case of anus vestibularis; reconstruction with successful result. R. O'CALLAGHAN. *Canadian M. Ass. J.*, 1922, xii, 246.

A new method for the formation of a continent iliac anus. B. CENFO. *Presse méd., Par.*, 1922, xxx, 333. [118]

The treatment of hemorrhoids by injection. I. BOAS. *Arch. de med., cirug. y especial.*, 1922, vii, 353.

Liver, Gall-Bladder, Pancreas, and Spleen

Clinical research on the biligenetic functions of the liver. A. BARLOCCO. *Riforma med.*, 1922, xxxviii, 268.

Some phenomena of liver pathology. J. E. HUNTER. *J. Nat. M. Ass.*, 1922, xiv, 76.

The pathology of cirrhosis of the liver. F. EPPLEN. *Arch. Int. Med.*, 1922, xxix, 482.

A case of abscess of the liver cured by injections of emetin chloride. G. IANNELLI. *Riforma med.*, 1922, xxxviii, 267.

A case of cystic lymphangio-endothelioma of the liver and a contribution to our knowledge of sacral tumor. T. MIYAMOTO. *Ztschr. f. Japan. chir. Gesellsch.*, 1921, xxii, 445.

Amoebic liver abscess: its pathology, prevention, and cure. The prevention of amoebic liver abscess and the recent reduction in its prevalence and mortality. L. ROGERS. *Lancet*, 1922, ccli, 677.

Vomiting in amoebic abscess of the liver. G. MIGINIAC. *Rev. de chir., Par.*, 1922, xli, 100.

Two cases of tropical abscess of the liver rupturing into the abdomen. S. FRY. *Indian M. Gaz.*, 1922, lvii, 135.

An extended indication for Talma's operation. R. RUBENSON. *Munchen. med. Wchnschr.*, 1922, lix, 269.

A case of rupture of the gall-bladder with profuse intraperitoneal hemorrhage. O. GJELLERUP. *Hosp.-Tid.*, 1921, lxiv, 826.

The gall-bladder and some of its affections. F. K. BOLAND. *J. Med. Ass. Georgia*, 1922, xi, 127.

The diagnosis of gall-bladder disease. W. F. CHENEY. *J. Am. M. Ass.*, 1922, lxxviii, 1281.

The duodenal tube in the diagnosis and treatment of diseases of the biliary tract. A. B. KIEL. *Texas State J. M.*, 1922, xvii, 568.

Biliary infections. J. W. SLUSS. *J. Indiana M. Ass.*, 1922, xv, 109.

The diagnosis of chronic infection of the gall-bladder and ducts. H. T. WILSON. *Texas State J. M.*, 1922, xvii, 564.

Anaphylaxis of thymic origin with status lymphaticus in a case of cholecystitis with jaundice. W. NEUMANN. *N. York M. J.*, 1922, cxv, 406.

The mucous type of hydrops of the gall-bladder due to obstruction of the cystic duct. C. DANIEL and A. BARBS. *Presse méd., Par.*, 1922, xxx, 377.

The mortality from biliary and urinary calculi in the United States registration area. F. L. HOFFMAN. *Med. Rec.*, 1922, ci, 532.

Cholesterin in biliary lithiasis. S. LARRAYA. *Rev. med. d. Uruguay*, 1922, xxv, 214.

On the coincidence of gall-stones and kidney stones in the same patient. L. FREEMAN. *Colorado Med.*, 1922, xix, 81.

The surgical treatment of cholelithiasis: cholecystectomy and choledochotomy. J. O'CONOR. *Lancet*, 1922, ccii, 792.

External biliary fistula. J. H. JOPSON and J. SPEESE. *Ann. Surg.*, 1922, lxxv, 506.

Primary sarcoma of the gall-bladder. H. I. GOLDSTEIN. *J. Med. Soc. N. Jersey*, 1922, xix, 100.

Surgical considerations in disease of the gall-bladder and bile ducts. A. O. WILENSKY. *N. York State J. M.*, 1922, xxii, 180.

Surgery of the bile ducts. G. HOLTZ. *Schweiz. med. Wchnschr.*, 1922, li, 1214.

The surgery of the bile passages; functional, bacteriological, and roentgen diagnosis, operative physiology, anatomical and clinico-physiological operative precautions. K. HENSCHEN. *Schweiz. med. Wchnschr.*, 1921, li, 1222. [119]

A reply to certain antagonistic criticism of non-surgical biliary tract drainage. B. B. V. LYON. *N. York M. J.*, 1922, cxv, 456.

Conservation of the gall-bladder. F. W. PARHAN. *N. Orleans M. & S. J.*, 1922, lxxiv, 650.

"Ideal cholecystotomy," a valuable procedure in certain cases of cholelithiasis. A. M. WILLIS. *J. Am. M. Ass.*, 1922, lxxviii, 942. [121]

The bacterial content of the bile ducts and its relation to the technique of cholecystectomy. K. SCHEEL. *Beitr. z. klin. Chir.*, 1922, cxxv, 377.

The external function of the pancreas and its bearing on the surgery of the pancreas. J. J. GILBRIDE. *N. York M. J.*, 1922, cxv, 470.

Pancreatic and pancreatosplenic mobilization. A. GUTIERREZ. *Rev. Asoc. méd. argent.*, 1921, xxxiv, 1743.

Canalicular cyst of the head of the pancreas; enucleation. B. DESPLAS and PHILARDEAU. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 376.

A case of congenital pancreatic cyst. C. E. EHA. *J. Am. M. Ass.*, 1922, lxxviii, 1294. [121]

Pancreatic cysts and pseudocysts; report of a case of total extirpation by an extraperitoneal method. A. PRIMROSE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 431. [122]

Pancreatic tumors. R. A. RIVAROLA. *Rev. Asoc. méd. argent.*, 1921, xxxiv, 1669.

Splenic and hepatic enlargement in endocarditis: a study of 286 autopsy findings. J. H. ARNETT. *Am. J. M. Sc.*, 1922, clxiii, 590.

Splenic anemia. R. L. ENGLE. *Pennsylvania M. J.*, 1922, xxv, 464.

Splenomegaly with progressive ascites and a loud venous hum; spontaneous cure of the ascites by leakage through the abdominal walls. A. J. HALL. *Brit. M. J.*, 1922, i, 592.

Unusually high degree of leucopenia following splenectomy for Banti's disease. J. L. THOMPSON and V. H. KYLLER. *Surg., Gynec. & Obst.*, 1922, XLIV, 614.

Carcinoma of the spleen: Its microscopic frequency, a possible etiologic factor. S. W. SAMPSON. *J. Am. M. Ass.*, 1922, LXXVIII, 913.

The spleen in surgery. C. WILLIAMS. *Virginia M. Month.*, 1922, XLX, 10.

The indications for the removal of the spleen in infants and children. F. H. BARTLETT. *Am. J. Dis. Child.*, 1922, XXIX, 183. [122]

Miscellaneous

The important abdominal lymph currents. P. DESCOMES and D. TURNESON. *Arch. franco-belges de chir.*, 1922, XXV, 198. [122]

The acute medical abdomen. H. S. FORMAN. *J. Med. Soc. N. Jersey*, 1922, XLX, 98.

Visceroperitoneal symptoms, complications, and treatment. E. I. PERC. *Illinois M. J.*, 1922, XL, 254.

Contribution to the surgical treatment of ascites, especially tuberculous, by peritoneal fenestration for permanent

subcutaneous drainage. F. ERKAS. *Arch. f. klin. Chir.*, 1922, CXXIII, 164.

The acute surgical abdomen. D. MINER. *J. Med. Soc. N. Jersey*, 1922, XLX, 95.

Acute inflammation of the abdomen. D. W. WARD. *J. Iowa State M. Soc.*, 1922, CL, 144.

Drainage in abdominal emergencies. A. CHABRIOL. *Brit. M. J.*, 1922, I, 701. [123]

Drainage in abdominal emergencies. S. T. JAMES. *Brit. M. J.*, 1922, I, 697.

Drainage of the lower abdomen. G. ROBERTSON. *Practitioner*, 1922, CXXII, 202. [124]

The present status of epiploecyst. J. H. GIBSON and J. B. FITZ. *Ann. Surg.*, 1922, LXXV, 419.

Torsion of the omentum, case report. F. RITTER. *Kentucky M. J.*, 1922, XX, 276.

A case of torsion of the common mesentery. J. ORINCZYK. *Bull. et mèm. Soc. de chir. de Par.*, 1922, XLVII, 123.

Traumatic subcutaneous isolated injury of the harts of the mesentery. C. BRUNNER. *Zentralbl. f. Chir.*, 1922, XLIX, 130.

Dermoid cysts of the mesentery. TÉDINAT. *Bull. et mèm. Soc. de chir. de Par.*, 1922, XLVII, 403.

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Congenital deformities. C. E. COON. *N. York M. J.*, 1922, CXX, 478.

Surgical tuberculosis. CALDWELL and CARDIJS. *Arch. néol. belges*, 1922, LXXV, 111.

Premature ossification after separation of the lower epiphysis. M. K. SMITH. *Ann. Surg.*, 1922, LXXV, 301.

Spontaneous healing inherent in transplanted bone. S. L. HAAR. *J. Bone & Joint Surg.*, 1922, N. S. IV, 202.

The effect of thyroid feeding on the bone marrow of rabbits. R. K. S. LEE, B. B. SARKAR, and J. P. H. G. BROWN. *J. Path. & Bacteriol.*, 1922, XXV, 228.

A review of the work done by the Glasgow School on the etiology of rickets. L. FRISVAY. *Lancet*, 1922, CCLII, 823.

Experimental rickets in rats. IV. The effect of varying the inorganic constituents of a rickets-producing diet. A. M. PARRISHMEYER, G. F. McCANN, and T. F. ZUCKER. *J. Exper. M.*, 1922, XXV, 411.

Experimental rickets in rats. V. The effect of varying the organic constituents of a rickets-producing diet. A. M. PARRISHMEYER, G. F. McCANN, and T. F. ZUCKER. *J. Exper. M.*, 1922, CXXV, 447.

Study on experimental rickets. XIX. The prevention of rickets in the rat by means of radiation with the mercury vapor quartz lamp. G. F. POWER, E. A. PARK, P. G. SHIPLEY, E. V. McCOLLUM, and N. SIMMONDS. *Bull. Johns Hopkins Hosp.*, 1922, CXXIII, 125.

Orthopedic measures in rickets. L. FROSCHE. *Fortschr. d. Med.*, 1922, XI, 119.

Fragilitas ossium associated with blue sclerotics in four generations. J. B. ALEXANDER. *Brit. M. J.*, 1922, I, 677.

The nature and pathogenesis of osteitis deformans (Paget). P. CAHN. *Arch. f. klin. Chir.*, 1922, CXXV, 312.

A case of osteitis deformans (Paget's disease). J. LINDVAY and R. G. GORDON. *Brit. M. J.*, 1922, I, 678.

Cystic fibrous ossitis of the upper extremity of the humerus. J. CARTILLER and R. TALLER. *Bull. et mèm. Soc. de chir. de Par.*, 1922, XLVII, 287.

The recognition and treatment of minor degrees of fibrositis. T. MARLIN. *Brit. M. J.*, 1922, I, 677.

Growth problems following osteomyelitis of adolescent long bones. K. SPEED. *Surg., Gynec. & Obst.*, 1922, CXXV, 469.

A case of multiple osteomyelitis, from the surgical department of the New Haven dispensary. J. I. NEWMAN. *Med. Rec.*, 1922, CL, 659.

Osteomyelitis of the left humerus with arthritis of the elbow treated by vacuotherapy. R. GILBOUET. *Bull. et mèm. Soc. de chir. de Par.*, 1922, XLVII, 329.

Juvenile deforming osteochondritis. E. D. FENNER. *N. Orleans M. & S. J.*, 1922, LXXIV, 649.

Periosteal sarcoma of the temporal bone treated by diathermy. R. DAVIES-COLLEY. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Clin. Sect., 13.

Pain in threatened and real gangrene of the extremities: its relief. B. M. BERNHEIM. *Am. J. M. Sc.*, 1922, CLXIII, 517.

Chronic osteoarthropathy: report of a case in a child aged twenty-eight months. C. H. HYMAN and T. P. HERICK. *J. Am. M. Ass.*, 1922, LXXVIII, 1043.

Chronic infectious arthritis: statistical report, with end results. F. BILLINGS, G. H. COLEMAN, and W. G. HIBBS. *J. Am. M. Ass.*, 1922, LXXVIII, 1027.

A very severe case of suppurative gonococcal arthritis. M. BASILIO. *Polichin. Rom.*, 1922, XLIX, 202, 203, 244.

Syphilitic disease of the joints. AXHAUTEN. *Fortschr. d. Med.*, 1922, XI, 141.

Physical treatment of forms of arthritis. W. B. SNOW. *Med. Rec.*, 1922, CL, 657.

Theno-synovial and tuberculous cysts. G. B. AKTON-GIOVANNI. *Polichin. Rom.*, 1922, XLIX, 202, 203, 244.

Multiple chondroma in a 13-year-old boy. A. VON KROS. *Jahrb. f. Kinderh.*, 1922, LXXII, 190.

The causes of congenital torticollis. A. SCHUBERT. *Deutsche Zeitschr. f. Chir.*, 1922, CLXXII, 32. [124]

Tennis elbow. L. COOK. *Indian M. Gaz.*, 1922, LVII, 130.

Slipping rib. C. J. MARSHALL, F. J. POWITON and H. K. V. SOLTAN. *Brit. M. J.*, 1922, I, 716.

A study of 200 cases of lower back pain. J. R. KUTH. *J. Bone & Joint Surg.*, 1922, N. S. IV, 337.

End-results of osseous fistula of the pelvis after war wounds. G. WORMS. Bull. et mém. Soc. de chir. de Par., 1922, XLVIII, 257.

A case of chronic osteomyelitis of the femur cured by autogenous vaccine therapy. G. G. JELLSJEFF. Kubanski. Nauchno-Med. Vestnik, 1921, 36.

The diagnosis of injuries of the soft structures of the knee joint. M. SPITZSKY. N. York M. J., 1922, CXV, 477.

Simultaneous hydrops of the knees. H. J. FITZ-SIMMONS. J. Bone & Joint Surg., 1922, n. s. iv, 326.

Voluminous juxta-patellar osteoma. GAY-BONNET. Bull. et mém. Soc. de chir. de Par., 1922, XLVIII, 375.

Juxta-articular angoma of the knee. NOË-JOSSERAND. Lyon chirurg., 1922, XIX, 81.

Juxta-tibial osteoma. GAY-BONNET. Bull. et mém. Soc. de chir. de Par., 1922, XLVIII, 358.

Common foot troubles as indicated by shoes. R. B. BELTMAN. Nation's Health, 1922, iv, 194.

Orthopedic significance of backache. J. K. YOUNG. N. York M. J., 1922, CXV, 480.

Fractures and Dislocations

Differential diagnosis between sprains and fractures. L. L. BOWLOW. Internat. J. Surg., 1922, XXXV, 115.

A new plaster splint dressing for the treatment of fracture of the clavicle. B. MEZO. Orvosi hetil., 1922, LXVI, 21.

Dislocations and fracture-dislocation occurring at the acromioclavicular articulation. R. W. MCNEALY. Illinois M. J., 1922, xli, 202. [124]

Habitual luxation of the shoulder. A. MONTAGNELZ. Nederl. Maandschr. v. Geneesk., 1921, x, 314.

An apparatus for the treatment of fractures of the humerus. H. PASCHOLD. Schweiz. med. Wchnschr., 1921, li, 1265. [125]

Fractures of the elbow: a clinical talk. F. E. CLOUGH. J.-Lancet, 1922, n. s. xlii, 185.

Recurrent anterior dislocation of the lower end of the ulna complicated by ununited fracture of the styloid process of the ulna. A. P. MITCHELL. Brit. J. Surg., 1922, ix, 355.

Dislocation of the semilunar bone of the wrist. I. COHEN. Med. Rec., 1922, ci, 656.

Two cases of fracture of the semilunar. L. MOREAU. Bull. et mém. Soc. de chir. de Par., 1922, XLVIII, 302.

"Otto-Chrobak pelvis" with fracture of the acetabulum. J. B. WALLER. Deutsche Ztschr. f. Chir., 1922, CLVIII, 19.

Perineal dislocation of the hip with avulsion of the greater tuberosity. W. C. CAMPBELL. J. Am. M. Ass., 1922, LXXVIII, 1115.

Fracture of the femur. T. H. HANCOCK. Internat. J. Surg., 1922, XXXIV, 145.

Fracture of the neck of the femur. D. TADDEI. Riforma med., 1922, XXXVIII, 289.

Abduction treatment in fracture of the neck of the femur. G. M. DORRANCE and E. C. MURPHY. Pennsylvania M. J., 1922, XLV, 449.

The extension treatment of diaphyseal fractures of the femur. A. W. SMIRNOFF. Nowy Chir. Arch., 1921, i, 111.

Vertical fractures and anomalies of the patella. E. GOLAY. Schweiz. Rundschau. f. Med., 1921, CXI, 577.

Treatment of fracture of the patella. F. VON DER HERTEN. Fortschr. d. Med., 1922, xl, 174.

Subastragoid external dislocation. E. JONES. J. Bone & Joint Surg., 1922, n. s. iv, 325.

Os vesalianum of the tarsus and fracture of the tuberosity of the fifth metatarsal bone. C. J. BAASTRUP. Hosp.-Tid., 1922, LXIV, 769, 785.

Complete dorso-lateral luxation in the metatarsophalangeal joint with subluxation in the tarso-metatarsal joint and multiple fracture from being run over. W. SCHULZ. Arch. f. klin. Chir., 1922, CLIX, 126.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

The surgery of infantile paralysis. F. J. GAENSLER. Wisconsin M. J., 1922, xx, 555.

The technique of the Henle-Albee operation. J. ELSNER. Zentralbl. f. Chir., 1922, XLIX, 257.

Experimental contributions to the question of bone transplantations. S. M. KROFVELD. Nederl. Maandschr. v. Geneesk., 1921, x, 471.

Some observations on bone-grafting: with special reference to bridge grafts. C. M. PAGE and G. PERKINS. Brit. J. Surg., 1922, ix, 540.

Practical thoughts on bone pegs, bone screws, etc. H. C. MASLAND. J. Bone & Joint Surg., 1922, n. s. iv, 317.

Physiological viewpoint in transplantation of tendons. O. BECK. Arch. f. orthop. u. Unfall-Chir., 1922, xx, 64.

A case of slipping peroneal tendons treated by Kelly's operation. D. H. HUME. Brit. M. J., 1922, i, 600.

Deltoid paralysis and arthrodesis of the shoulder joint. G. F. STRAUB. Surg., Gynec. & Obst., 1922, XXXIV, 476.

The diagnosis and treatment of some common injuries of the shoulder joint. R. W. LOVETT. Surg., Gynec. & Obst., 1922, XXXIV, 437.

End-results of operation for Dupuytren's contracture. A. B. GILL. Ann. Surg., 1922, LXXV, 504.

Transplantation of the abductor muscle of the fifth finger in loss of the power of opposing the thumb. J. NICOLAYSEN. Deutsche Ztschr. f. Chir., 1922, CLXVIII, 133.

Substitution of the M. opponens pollicis. H. KRUKENBERG. Ztschr. f. orthop. Chir., 1921, XLII, 178.

Excision of the head of the femur in arthritis deformans (osteo-arthritis) of the hip joint. H. PLATT. Brit. M. J., 1922, i, 672.

Mobilization in the surgery of the extremities. A. BUM. Med. Klin., 1921, XVII, 1571. [126]

Short observations on Sauerbruch's operation and prosthesis. A. BLENCKE. Muenchen. med. Wchnschr., 1922, LXIX, 202.

Late results with Sauerbruch amputations. C. TEN HORN. Muenchen. med. Wchnschr., 1922, LXIX, 230.

Early weight-bearing in the treatment of amputations of the lower limbs. P. D. WILSON. J. Bone & Joint Surg., 1922, n. s. iv, 224.

Amputation stumps and their adaptation to artificial limbs. C. BEARSE. Surg., Gynec. & Obst., 1922, XXXIV, 541.

Some cases of artificial injuries of the knee joint treated by incision and primary suture and cured with absolute functional integrity. R. SIMON and E. STULZ. Rev. de chir., Par., 1922, xli, 134.

The treatment of injuries of the knee joint. ZAHRADNICKY. Rozhledy v chir. a gynaek., 1921, i, 34, 52. [126]

Lengthening of the quadriceps tendon. G. E. BENNETT. J. Bone & Joint Surg., 1922, n. s. iv, 279.

Arthrodesis of the ankle joint. J. HANAUSEK. Rozhledy v chir. a gynaek., 1921, vi, 260.

A new method of operative treatment of foot deformities. O. E. SCHULZ. J. Bone & Joint Surg., 1922, n. s. iv, 219.

The traumatic lesions of the astragalus. F. LOTSCH. Klin. Wchnschr., 1922, i, 318.

A new method of astragalectomy. E. DESTOT. Rev. de chir., Par., 1922, xli, 131.

Astragalectomy and backward displacement of the foot: an investigation of its practical results. A. WHITMAN. *J. Bone & Joint Surg.*, 1922, n.s. iv, 286.

Splinting of the instep after astragalectomy. J. MORLAU. *Arch. franco-belges de chir.*, 1922, xiv, 371.

Correction of club-foot. J. HANAUER. *Časop. lēk. čes.*, 1922, lal, 46.

The treatment of congenital hallux varus. A. MACLENNAN. *Surg., Gynec. & Obst.*, 1922, xxiv, 540.

A new method of operation for flat-foot. A. WACHTER. *Ztschr. f. orthop. Chir.*, 1922, xlii, 168.

Excision of the os calcis for tuberculous osteitis: a late end result. C. P. G. WARDLEY. *Brit. J. Surg.*, 1922, ix, 553.

Experiences and results following operative malalignment of ankylosed weight-bearing joints. H. HÖRDLER. *Arch. f. klin. Chir.*, 1922, cxvii, 647. [127]

Orthopedics in General

Orthopedic compensation of hypotonia and deep anesthesia in tabetics. H. VON BAUER. *München. med. Wchnschr.*, 1922, lxi, 37.

The use of the muscles of the abdomen in orthopedic surgery. H. KRÜSNER. *Ztschr. f. orthop. Chir.*, 1922, xli, 193.

The therapy of static weak-foot. G. MÜLLER. *Therap. d. Gegenw.*, 1922, lxiii, 19.

SURGERY OF THE SPINAL COLUMN AND CORD

A case of fracture of the atlas. E. U. WILLIAMS. *Lancet*, 1922, ccl, 692.

A case of spontaneous fracture of the transverse process of a lumbar vertebra due to tuberculosis. B. H. MOORE. *J. Bone & Joint Surg.*, 1922, n.s. iv, 322. [128]

Note on the sacralization of the fifth lumbar vertebra. C. T. HOLLAND. *J. Bone & Joint Surg.*, 1922, n.s. iv, 215.

Some considerations upon the treatment of Pott's disease. E. SORREL. *Presse méd., Par.*, 1922, xxx, 378.

Hypertrophic bone changes in tuberculous spondylitis. R. B. COFIELD. *J. Bone & Joint Surg.*, 1922, n.s. iv, 332. [128]

The treatment of Pott's disease in the adolescent and adult by Albee's method. L. HERARD. *Lyon chirurg.*, 1922, cix, 84.

The use of the bone graft in the treatment of Pott's disease. W. S. BAER. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 140.

Scoliosis as it concerns the general practitioner. B. W. MOFFAT. *J. Med. Soc. N. Jersey*, 1922, xix, 93.

The treatment of scoliosis by plaster jackets. J. HANAUER. *Rev. d'orthop.*, 1922, xxix, 127. [128]

Spina bifida with associated diverticulum of the bladder (urachus) and pyonephrosis. J. H. SMITH. *South. M. J.*, 1922, xv, 392.

The clinical differentiation of incontinence in lumbosacral spina bifida occulta and its operative treatment. A. VON LICHTENBERG. *Ztschr. f. urol. Chir.*, 1922, vi, 271. [129]

Early symptoms of spinal cancer. E. D. OPPENHEIMER. *J. Bone & Joint Surg.*, 1922, n.s. iv, 342.

SURGERY OF THE NERVOUS SYSTEM

Persistent pain in lesions of the peripheral and central nervous system. W. HARRIS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Neurol., 13.

Resection of the cervico-thoracic sympathetic nerve. T. JONOVIC. *Presse méd., Par.*, 1922, xxx, 353. [129]

Pressure ulnar palsy: ulnar palsy due to pressure of a plaster-of-Paris body cast. P. LEWIN. *J. Am. M. Ass.*, 1922, lxxviii, 1112.

A case of paralysis of the upper plexus (Duchenne-Erb paralysis) following operation for torticollis. H. ENGEL. *Arch. f. orthop. u. Unfall Chir.*, 1922, xx, 61.

The treatment of tabetic gastric crises by section of the gastric branches of the vagus. G. COTTE. *Lyon chirurg.*, 1922, xix, 75.

Gunshot injuries of the peripheral nerves. VI. Nerves of the lower extremity. F. KRAMER. *Monatsschr. f. Psychiat. u. Neurol.*, 1922, li, 129.

A simple procedure for the prevention of amputation neuromata. A. HEDRI. *Arch. f. klin. Chir.*, 1921, cxvii, 842.

Surgical treatment of non-traumatic sciatica. HEILE. *Zentralbl. f. Chir.*, 1921, xlviii, 1869.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Postoperative shock and hemorrhage. LOOMIS. *J. Am. Inst. Homoeop.*, 1922, xiv, 136.

Cancer. D. POWER. *Med. Press*, 1922, n.s. cxlii, 281.

Is cancer preventable? W. A. LANE. *Med. Press*, 1922, n.s. cxlii, 278.

The cancer problem. H. A. BRUCE. *Canadian M. Ass. J.*, 1922, xl, 275.

The cancer problem. G. I. CHEATLE. *Med. Press*, 1922, n.s. cxlii, 282.

The theory of cancer. T. CHERRY. *Med. J. Australia*, 1922, i, 425.

Cancer propaganda. J. W. LONG. *Virginia M. Month.*, 1922, xlix, 5.

A contribution to a discussion on the causation of cancer. W. J. PENFOLD. *Med. J. Australia*, 1922, i, 460.

The relation of chronic intestinal stasis to cancer. E. G. SLEISINGER. *Med. Press*, 1922, n.s. cxlii, 293.

The fat of adipose tissue in malignant disease. A. N. CURRIE. *J. Path. & Bacteriol.*, 1922, xxv, 213.

Results of animal experiments on cancer. J. A. MURRAY. *Med. Press*, 1922, n.s. cxlii, 286.

The micro-flora of cancer. J. BLAND-SUTTON. *Med. Press*, 1922, n.s. cxlii, 290.

The treatment of malignant disease by a diet free from fat soluble vitamin. A. S. WYARD. *Lancet*, 1922, ccl, 840.

Cancer and central control of the blood supply. H. BROWN. *Med. Press*, 1922, n.s. cxiii, 358.

Parthogenesis and cancer. N. GOORMAGHTIGH. *Arch. méd. belges*, 1922, lxxv, 97. [130]

Studies on lymphoid activity. VI. Immunity to transplanted cancer induced by injection of olive oil. W. NAKAHARA. *J. Exper. M.*, 1922, xxxv, 493.

Cancer therapy in relation to physiological research. J. A. SHAW-MACKENZIE. *Med. Press*, 1922, n.s. cxiii, 287.

The results of the radium treatment of cancer. W. S. LAZARUS-BARLOW. *Med. Press*, 1922, n.s. cxiii, 284.

The use of pituitrin in inoperable cancer. J. H. NORGATE. *Brit. J. Surg.*, 1922, ix, 405.

Preparation of the cancer patient for operation. D. T. QUIGLEY. *Northwest Med.*, 1922, xii, 122.

Two cases of epithelioma of the wrist. J. GAYMER JONES. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Clin. Sect., 17.

Lymphosarcoma. J. R. WELLS. *Ann. Surg.*, 1922, lxxv, 597.

Extirpation of the suprarenal capsule and epilepsy. E. HEYMAN. *Zentralbl. f. Chir.*, 1922, xlix, 255.

Extirpation of the suprarenal glands in epilepsy. G. SULTAN. *Deutsche med. Wchnschr.*, 1922, xlviii, 153.

Observations on a case of postoperative tetany with implantation of human parathyroids. A. E. BROWN. *Ann. Surg.*, 1922, lxxv, 418. [131]

Human actinomycosis; with special reference to the source and mode of infection. W. W. MATTSON. *Surg., Gynec. & Obst.*, 1922, xxxiv, 482.

Progressive lipodystrophy; report of a case. A. STRAUHL. *J. Am. M. Ass.*, 1922, lxxviii, 1037.

Sera, Vaccines, and Ferments

The action of the thyroid gland in the processes of immunity. C. SESTINI. *Spermentale*, 1922, lxxvi, 79.

The non-specificity of vaccines. V. E. KEA. *New Orleans M. & S. J.*, 1922, lxxiv, 675.

Bacteriophagic virus in immunity. F. DE HERELLE. *Ztschr. f. aertzl. Fortbild.*, 1921, xviii, 664. [131]

A heretofore unknown menace inherent to therapeutic serums. F. HERB. *Med. Rec.*, 1922, ci, 620.

Blood

Infusion and blood transfusion. G. C. J. SCHOLTEN. *Prakt. Ergebn. d. Geburtsh. u. Gynaek.*, 1922, ix, 64.

Effusion of blood in the abdomen and its use for transfusion. T. RIETZ. *Lyon chirurg.*, 1922, xix, 34.

The length of life of transfused erythrocytes in patients with primary and secondary anemia. J. T. WEARN, S. WARREN, and O. AMES. *Arch. Int. Med.*, 1922, xxix, 527.

"Pernicious anemia" aplastic or toxic. J. F. REY. *Brit. M. J.*, 1922, i, 679.

Pernicious anemia with unusual periods of remission. E. A. VON WILLEBRAND. *Acta med. Scand.*, 1922, lvi, 419.

Studies of the capillaries in pernicious anemia and several other blood diseases. E. HISINGER-JAEGERSKIOELD. *Acta med. Scand.*, 1922, lvi, 443.

The 50 per cent solution of alcohol as a hæmostatic. H. REIL. *Zentralbl. f. Gynaek.*, 1922, xlvii, 176.

The treatment of pyogenic infection of the blood by the intravenous use of urotropin. A. BUZZELLO. *Deutsche Ztschr. f. Chir.*, 1922, clxviii, 61. [132]

Blood and Lymph Vessels

The X-ray diagnosis of aortitis. T. FRAZER and J. D. MACRAE. *South. M. J.*, 1922, xv, 261.

Acute aneurisma. R. W. MCNEALY. *Illinois M. J.*, 1922, xli, 262.

Traumatic aneurism of the splenic artery—rupture—ligation. C. J. MARSHALL. *Brit. J. Surg.*, 1922, ix, 570.

The treatment of traumatic aneurisms: a case of aneurism of the femoral artery treated by ligation combined with a Matas aneurismorrhaphy. R. D. BARRERA. *Prog. de la clin., Madrid*, 1922, x, 356.

New ideas on the causation of varicose veins, leg ulcers, and pruritus ani. G. E. BARNES. *Med. Rec.*, 1922, vi, 626.

Surgical Diagnosis, Pathology, and Therapeutics

A few remarks on the diagnostic value of pupillary symptoms in general disease. M. L. FOSTER. *N. York State J. M.*, 1922, xxii, 171.

Basal metabolism and the basal metabolic rate in disease. S. A. WHITE. *Mil. Surgeon*, 1922, i, 433.

The value to the surgeon of the basal metabolic rate in toxic goiter. J. E. ELSE. *Northwest Med.*, 1922, xxi, 108.

The routine examination of the chest. W. W. JARRELL. *J. Med. Ass. Georgia*, 1922, xi, 138.

Devices to eliminate certain objectionable factors in the analysis of the gastric contents. J. L. BUTSCH and C. M. O'BRIEN. *J. Lab. & Clin. Med.*, 1922, vii, 431.

The diagnostic value of pain, tenderness, and rigidity in abdominal and pelvic diseases. S. M. HAY. *Canadian Pract.*, 1922, xlvii, 127.

The significance of pain in the right abdomen. R. W. BAIRD. *Texas State J. M.*, 1922, xvii, 574.

The intestinal tube from a diagnostic and therapeutic standpoint. S. T. LOWRY. *Texas State J. M.*, 1922, xvii, 571.

Chair for performing spinal punctures. T. B. CHRISTIAN. *J. Lab. & Clin. Med.*, 1922, vii, 430.

The diagnostic value of lumbar puncture in cerebral and spinal hæmorrhages. W. HARRIS. *Brit. M. J.*, 1922, i, 635.

The laboratory specialist as a clinical consultant. W. H. BAILEY. *J. Lab. & Clin. Med.*, 1922, vii, 410.

What does the internist expect of the laboratory? W. F. DUTTON. *J. Oklahoma State M. Ass.*, 1922, xv, 107.

Injuries from strong electric currents. H. JAEGER. *Schweiz. med. Wchnschr.*, 1921, li, 1250. [132]

The restriction of packing in the treatment of suppurative processes. S. E. SSKOLOFF. *Verhandl. d. russ. chir. Pirogoff-Ges., Petrograd*, 1922.

The treatment of surgical tuberculosis with the carbon arc-lamp. P. K. SAUER. *Ann. Surg.*, 1922, lxxv, 400.

Heliotherapy in affections other than those due to the tubercle bacillus. E. AMSTAD. *Schweiz med. Wchnschr.*, 1922, lii, 105.

Experimental Surgery and Surgical Anatomy

The anatomical basis of the physiology and pathology of the mesencephalus. L. CASTALDI. *Spermentale*, 1922, lxxvi, 5.

Experimental studies on instrumental compression of the aorta. L. NUERNBERGER. *Arch. f. Gynaek.*, 1922, cxv, 562.

Roentgenology and Radium Therapy

Radiology and physics. G. W. C. KAYE. *Lancet*, 1922, ccii, 622.

Physiotherapy and radiology. B. B. GROVER. *Med. Herald*, 1922, xli, 127.

Status of the radiologist in small communities. U. S. KAHN. *J. Radiol.*, 1922, iii, 139.

Research into the action of irritating bodies as a result of cell destruction following the application of roentgen rays, with particular consideration of their haemostatic properties. W. MUELLER. *Beitr. z. klin. Chir.*, 1922, cxxx, 414.

The selection of gamma rays or X-rays for radiotherapeutic purposes. W. S. LAZARUS-BARLOW. *Arch. Radiol. & Electrol.*, 1922, xvi, 331.

Organ stimulation by the roentgen ray. W. F. PETERSEN and C. C. SAEED. *J. Radiol.*, 1922, iii, 115.

The value of roentgen therapy in dermatology. G. M. MACKIE and G. C. ANDREWS. *Am. J. Roentgenol.*, 1922, n.s. ix, 241.

X-rays in dermatology. H. C. SIMON. *Practitioner*, 1922, cviii, 739.

The roentgen-ray treatment of diseases of the skin. H. H. HATEN. *Am. J. Roentgenol.*, 1922, n.s. ix, 247.

The results of roentgen treatment in lupus vulgaris. S. ROETHMAN. *Strahlentherapie*, 1922, xiii, 325.

The treatment of focal infection of the throat by the X-ray as compared with the surgical removal of the tonsils and adenoids. W. D. WITHERS. *J. Radiol.*, 1922, iii, 129. [133]

Radiotherapy of diseased tonsils. R. H. LAFFERTY and C. C. PHILLIPS. *J. Radiol.*, 1922, iii, 132. [133]

The X-ray treatment of the tonsils with the conjoint use of the ultraviolet ray. A. J. PACINI. *J. Radiol.*, 1922, iii, 141. [134]

Respiratory metabolic experiments in Basedow cases treated roentgenologically. N. ROTH. *Wien. Arch. f. innere Med.*, 1922, iii, 367.

The roentgen diagnosis of rare deep-seated oesophageal diverticula. J. FREUD. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxviii, 359.

A comparison of chest X-ray densities based on a study of granite dust inhalation. D. C. JARVIS. *Am. J. Roentgenol.*, 1922, n.s. ix, 226.

Roentgen-ray technique for the demonstration of small pneumothorax. J. C. THOMPSON and N. BARLOW. *Am. J. Roentgenol.*, 1922, n.s. ix, 335.

The roentgen examination of the gastro-intestinal tract. A. HARTUNG. *Illinois M. J.*, 1922, xli, 225.

X-ray evidence of abdominal small intestinal states embodying an hypothesis of the transmission of gastro-intestinal tension. R. W. MILLS. *Am. J. Roentgenol.*, 1922, n.s. ix, 322. [134]

Peristalsis of the colon. P. M. HICKY. *Am. J. Roentgenol.*, 1922, n.s. ix, 360.

Oxygen in the peritoneal cavity, with report of cases. W. S. BARNHART. *Am. J. Obst. & Gynec.*, 1922, iii, 424.

Pneumocystography, a preliminary report on its advantages and technique. S. A. THOMPSON. *J. Urol.*, 1922, vii, 285. [135]

The roentgenology of the prostate. F. KRAFT. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxviii, 562.

Studies on X-ray effects. X. The biological action of small doses of low-frequency X-rays. W. NAKAHARA and J. B. MURPHY. *J. Exper. M.*, 1922, xxv, 473.

Studies on X-ray effects. XI. The fate of cancer grafts implanted in subcutaneous tissue previously exposed to X-rays. J. H. LEE, E. STERN, and J. B. MURPHY. *J. Exper. M.*, 1922, xxv, 481.

Critique of the modern roentgen therapy in cancer. M. J. SYTTENBERG. *Med. Rec.*, 1922, c, 662.

The possibilities of irradiation in malignant disease. I. J. CLARKE. *Med. J. Australia*, 1922, i, 460.

The present position of the X-ray treatment of malignant disease. R. MURPHY. *Med. Press*, 1922, n.s. cxiii, 290.

Superficial malignancies. C. F. BOWEN. *Am. J. Roentgenol.*, 1922, n.s. ix, 133.

New X-ray technique in malignancies. DIEFFENBACH. *J. Am. Inst. Homoeop.*, 1922, xiv, 246.

Radiotherapy of malignant tumors. C. GOODMAN. *Cincinnati J. M.*, 1922, iii, 61.

Problems in modern-day X-ray therapy—newer methods of application and measurement. F. C. FROST. *J. Missouri State M. Ass.*, 1922, xiv, 744.

The rational technique in roentgen treatment of cancer, a contribution to the study of deep dosage. J. A. SARA. *Rev. Assoc. med. argent.*, 1922, xxxix, 1213.

The treatment of malignant neoplasms with radioactive substances. R. WERNER. *Strahlentherapie*, 1922, xiii, 360.

The physical foundations of deep therapy. A. BACHEM. *J. Radiol.*, 1922, iii, 123.

Further attempts at the experimental production of carcinoma by means of radium. W. S. LAZARUS-BARLOW. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Pathol., 7.

Radium therapy. R. KNOX. *Brit. M. J.*, 1922, i, 591.

The tolerance of the eye to the action of radium. J. JONQUIERES. *Rev. Assoc. med. argent.*, 1922, xxxix, 1247.

A self retaining radium holder for tumor work. C. SWANSON and W. H. HADLEY. *J. Am. M. Ass.*, 1922, xxviii, 1125.

Radium—its use, especially in skin epithelioma. L. D. BROSE. *Cincinnati J. M.*, 1922, iii, 40.

The haemostatic action of radium in tumors of the bladder and urethra. G. MARION. *J. d'urolog. méd. et chir.*, 1922, xiii, 161.

A report of two cases of tumor of the kidney treated by radium. W. AYRES. *Internat. J. Surg.*, 1922, xxxv, 134.

Industrial Surgery

The medical aspects of personnel work. R. F. ANDREWS. *Nation's Health*, 1922, iv, 228.

Co-operative medical aid for injured workmen. H. D. DUDLEY. *Nation's Health*, 1922, iv, 231.

Little things in railroad surgery. W. W. REYNOLDS. *Internat. J. Surg.*, 1922, xxxv, 143.

The conservative treatment of railway injuries. W. H. BLAKE. *South M. J.*, 1922, xv, 315.

Fraudulent accident claims. H. H. DOWNES. *Am. J. Surg.*, 1922, xxxv, 88.

Report of a case of injury to the forearm—treatment and results. W. T. MATHEWS. *Internat. J. Surg.*, 1922, xxxv, 144.

Hospitals; Medical Education and History

Traditions and ideals of our profession. G. D. HEAD. *J. Lancet*, 1922, n.s. xlii, 164.

Early Wisconsin medical history. H. P. GREVLEY. *Wisconsin M. J.*, 1922, xi, 558.

Legal Medicine

The medicolegal consideration of mental and nervous conditions following traumatism. A. GORDON. *J. Nat. M. Ass.*, 1922, xiv, 67.

Requirements and liability in actions for service. *Fincher vs. Davis* (Ga.), 168 S.F.R., 1, 901. [135]

No evidence of negligence against the defendants. *Wecker vs. Hamel et al.* (Minn.), 184 N.W.R., p. 1007. [136]

Malpractice found in the treatment of an oblique fracture. *Donnelly vs. Packard* (Wisc.), 187 N.W.R., p. 164. [137]

Not liable for using roentgen-ray static machine. *Street vs. Hodgson* (Md.), 115 Atl. R., p. 27.

GYNECOLOGY

Uterus

Observations on the distribution and function of the uterine ciliated epithelium in the pig, with reference to certain clinical hypotheses. F. F. SNYDER and G. W. CONSER. *Am. J. Obst. & Gynec.*, 1922, iii, 358.

Minor displacements of the uterus as a cause of disability in women. J. S. FAIRBAIRN. *Brit. M. J.*, 1922, i, 587.

Refractile displacements of the uterus, with suggestions regarding their proper treatment. W. T. BLACK. *South. M. J.*, 1922, xv, 310. [138]

Methods of uterine fixation. A. D. VOTTA. *Rev. argent. de obst. y ginec.*, 1922, vi, 3.

Chronic uterine inversion; a new method of strip vaginal hysterectomy. A. ANGELI. *Policlin.*, Rome, 1922, xxix, 402. *Chir.*, 189. [138]

Uterine hemorrhage from the viewpoint of the general practitioner. F. A. L. LOCKHART. *Canadian M. Ass. J.*, 1922, vii, 240.

Treatment of uterine fibroids. W. F. SHAW. *Med. Press*, 1922, n.s. cxiii, 333.

Uterine fibroma with pure fibroma of the ovary. S. DIEZEL CHIAJIN. *Gynec. et obst.*, 1922, v, 205.

Radiotherapy of uterine fibromyomata. E. LANARI. *Rev. Asoc. med. argent.*, 1922, xxiv, 1727.

Uterine fibroid treated with radium. J. J. MUNDELL. *Virginia M. Month.*, 1922, xlix, 14.

Uterine fibromyomata and the fourth era of surgery. R. T. MORRIS. *Am. J. Surg.*, 1922, xxxvi, 86.

Myomectomy. W. J. MAYO. *Surg., Gynec. & Obst.*, 1922, xxvii, 348.

Wedge-shaped resection of the uterus. J. JERIE. *Rozhlady v chir. a gynaek.*, 1921, i, 241. [138]

The early diagnosis and treatment of cancer of the uterus. R. T. FRANK. *Colorado Med.*, 1922, xix, 83.

Cancer of the uterine cervix. STAJANO. *Rev. med. d. Uruguay*, 1922, xiv, 248.

Clinical observations in radiotherapy and uterine carcinoma. C. O. DONALDSON and G. E. KNAPPENBERGER. *Med. Herald*, 1922, xii, 123.

The indications, technique, and complications of Wertheim's operation for carcinoma of the cervix of the uterus. B. DIEPLAS. *J. de chir.*, 1922, xiv, 337. [138]

An analysis of the end results in 232 hysterectomy-myectomies, with special reference to ovarian conservation. J. G. CLARK and C. C. NORRIS. *Surg., Gynec. & Obst.*, 1922, xxvii, 509. [139]

Adnexal and Peri-Uterine Conditions

Vaccinotherapy for adnexitis. G. COTTE and J. CREVASSEL. *Lyon chirurg.*, 1922, xix, 11.

Two cases of torsion of a hydrosalpinx. PERRIN. *Lyon chirurg.*, 1922, xix, 112.

Lithopedion formation in extra-uterine foetal masses. R. D'ARSOV and E. L. KING. *Am. J. Obst. & Gynec.*, 1922, vii, 377. [139]

The re-injection of blood in twenty-four cases of ruptured extra-uterine pregnancy. B. TOEPFLER. *Deutsche med. Wochenschr.*, 1922, xlviii, 92. [140]

Salpingotomy versus salpingectomy in the treatment of tubal gestation. B. WHITEHOUSE. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 93. [140]

The ovum as an internal secretory organ. A. L. McILROY. *N. York M. J.*, 1922, cxv, 404.

The diagnosis of hernia of the ovary and tube. L. F. WATSON. *Med. Rec.*, 1922, ci, 668.

Intra-abdominal hemorrhage from ruptured corpus luteum. E. C. MOORE. *Ann. Surg.*, 1922, lxxiv, 492.

Conservative ovarian surgery. C. H. BRITZER. *Nebraska State M. J.*, 1922, vii, 133. [140]

Clinical transplantation of ovarian tissue. F. DE BRYNNE. *Vlaamsch geneesk. Tijdschr.*, 1922, iii, 37.

Ovarian hematomata of endometrial type (perforating hemorrhagic cysts of the ovary) and implantation adenomata of endometrial type. J. A. SAMPSON. *Boston M. & S. J.*, 1922, clxxvi, 445.

Bilateral primary solid ovarian carcinoma. W. T. CHENHALL. *Med. J. Australia*, 1922, i, 463.

The after-results of the removal of the uterine appendages in hysterectomy for uterine fibroids and chronic metritis. J. W. BRIDE. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 68. [141]

Extra-genital chorion-epitheliomata of congenital origin. J. MILLER and F. J. BROWNE. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 48.

Retroperitoneal wolffian cysts. A. LAPOINTE. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 319.

A case of ectopic gestation complicated by suppurative appendicitis. M. E. LANDAU. *Lancet*, 1922, ccii, 793.

External Genitalia

Neurodermitis and carcinoma of the clitoris in a young girl. H. MUELLER. *Dermat. Ztschr.*, 1921, xxv, 70. [141]

Trichomonas vaginalis vaginitis. J. B. HARTWELL. *Colorado Med.*, 1922, xix, 86.

The treatment of bucco-lingual and of vulvo-vaginal leucoplakia. V. HERZEN. *Schweiz. Rundschau f. Med.*, 1922, xxii, 70.

Vesicovaginal fistula; with case report of successful operation on a fistula of eight years' standing, the patient having had four unsuccessful operations. C. J. LEMMON. *J. South Carolina M. Ass.*, 1922, xviii, 94.

Primary cancer of the vagina. J. H. ENGELKENS. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 27. [142]

Vaginoplasty. O. STEUDING. *Zentralbl. f. Gynaek.*, 1922, xlv, 61. [142]

Resection of Bartholin's glands. E. D. BARRINGER, A. W. WILLIAMS, and M. A. WILSON. *N. York State J. M.*, 1922, xxii, 145.

Miscellaneous

Gynecological radiotherapy. S. TSAKONA and J. KOFF. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 145.

Gynecological operations under local anesthesia. R. E. FARR. *Am. J. Obst. & Gynec.*, 1922, iii, 400.

Restoration of function in gynecological surgery. W. D. JAMES. *J. South Carolina M. Ass.*, 1922, xviii, 87.

Relative fertility. E. REYNOLDS and D. MACOMBER. *Boston M. & S. J.*, 1922, clxxvi, 380.

Sterility. S. FORSDIKE. *Practitioner*, 1922, cviii, 243.

Some aspects of sterility. B. SOLOMONS. *Med. Press*, 1922, n.s. cxiii, 311.

The treatment of choice in pelvic hematoceles. J. S. PASSERON. *Rev. argent. de obst. y ginec.*, 1922, vi, 67.

Treatment of metrorrhagia by bacterial therapy. A. WEYMEERSCH. *Bruxelles méd.*, 1922, xl, 295.

Urethral stricture in the female. H. M. N. WYNNE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 208. [142]

Rupture of the female urethra; primary suture with cystostomy. R. ALAMARTINE. *Lyon chirurg.*, 1922, xix, 82.

OBSTETRICS

Pregnancy and Its Complications

- Clinic pregnancy. E. NOVAR. *J. Am. M. Ass.*, 1922, lxxviii, 544. [144]
- Blood pressure in pregnancy. J. N. URSHUR. *Virginia M. Month.*, 1922, xlix, 3.
- Quadruple pregnancy. H. F. THOMPSON. *J. Am. M. Ass.*, 1922, lxxviii, 1922.
- Influenza, pregnancy, and emphysema. J. D. T. RUCKITT. *Lancet*, 1922, ccl, 841.
- Exophthalmic goiter and pregnancy. I. BRAM. *Am. J. Obst. & Gynec.*, 1922, lli, 357.
- The vomiting of pregnancy. H. G. PARTRIDGE. *Rhode Island M. J.*, 1922, v, 218.
- Toxemia of pregnancy with eye symptoms. S. G. DARNLEY. *Kentucky M. J.*, 1922, xx, 260.
- Some chemical observations on the toxemias of pregnancy. O. L. V. DE WESSELOW. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 21.
- Chemical investigation of the toxemias of pregnancy. O. L. V. S. DE WESSELOW and J. M. WYATT. *Med. Press*, 1922, n.s. cxlii, 331.
- An experimental investigation of the corpus luteum in its relation to the toxemias of pregnancy. R. L. M. WALLIS and H. G. E. WILLIAMS. *Lancet*, 1922, ccl, 784. [144]
- The relationship between toxemia of pregnancy and uterine sepsis from a study of 400 toxemic cases. F. S. KELLOGG. *Am. J. Obst. & Gynec.*, 1922, lli, 366.
- Eclampsia. A. B. PATTON. *J. Med. Ass. Georgia*, 1922, xi, 136.
- The treatment of placenta previa by abdominal hysterotomy. BROCHIA. *Gynec. et obst.*, 1922, v, 198. [144]
- Intestinal occlusion by megacolon in a pregnant woman. SENCERT and SIMON. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 267.
- Death of the fetus in utero, missed labor, and delivery by cesarean section. A. H. HUGHES. *Med. J. Australia*, 1922, i, 333.
- Rupture of the cesarean section scar in subsequent pregnancy or labor. W. R. MACKENZIE. *Lancet*, 1922, ccl, 786.
- The interruption of pregnancy at term, with a consideration of the methods of estimating the maturity of the fetus in utero. W. H. VOGT. *South. M. J.*, 1922, xv, 290. [144]

Labor and Its Complications

- Drug therapy as an aid to cervical dilatation during labor. LORCEAUX. *J. Am. Inst. Homoeop.*, 1922, xiv, 941.
- Hypophyseal extract in the posterior types of frontal presentations. L. POUILLON. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 129.
- Rupture of the inferior segment of the uterus treated by intracavitary suture. E. BAUCHOU. *Rev. argent. de obst. y ginec.*, 1922, vi, 65.
- The premature separation of the normally implanted placenta. A. C. WILLIAMSON. *Am. J. Obst. & Gynec.*, 1922, lli, 386. [145]
- Acute pulmonary edema in labor. F. G. CORBIN. *Surg. Gynec. & Obst.*, 1922, xxxiv, 317. [145]
- Indications for hysterectomy drawn from the results of curettage in postpartum abortion. J. VANVERTS. *Gynec. et obst.*, 1922, v, 277.
- Comparative value of the different methods of abdominal cesarean operation. E. A. BOERO. *Rev. argent. de obst. y ginec.*, 1922, vi, 10.

Vaginal cesarean section, with a report of twelve cases. L. L. PHANEUF. *Boston M. & S. J.*, 1922, clxxvi, 301.

Reports of seven cesarean sections, five for eclampsia and two for contracted pelvis. W. L. DUNNING. *Med. Rec.*, 1922, cl, 607.

A clinical and anatomical study of fifty-one cases of repeated cesarean section, with especial reference to the healing of the cicatrix and to the occurrence of rupture through it. T. O. GAMBLE. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 93. [145]

Extraperitoneal cesarean section and Bogros' space. FUHRMANN. *Prakt. Ergeb. d. Geburtsh. u. Gynaek.*, 1922, ix, 54.

Some further notes on cesarean section. H. O. HOWITT. *Canadian Pract.*, 1922, xlvii, 142.

A wandering silk suture removed from the urethra as a sequel to cesarean section. G. LUKER. *Lancet*, 1922, ccl, 843.

Puerperium and Its Complications

- Acute degeneration of a uterine leiomyofibroma complicating the puerperium. A. F. SPURNEY and P. M. SPURNEY. *J. Am. M. Ass.*, 1922, lxxviii, 1049.
- A method of preventing puerperal infection. F. H. WHYTE. *Brit. M. J.*, 1922, ii, 638.
- The treatment of puerperal infection. E. A. BOERO. *Rev. Assoc. méd. argent.*, 1922, xxiv, 1713.
- Protein therapy in puerperal infections. J. A. BERUTI. *Rev. argent. de obst. y ginec.*, 1922, vi, 16.
- The treatment of puerperal fever. A. DORDERLEIN. *Deutsche med. Wchnschr.*, 1922, xlviii, 22. [146]
- The indications for immediate hysterectomy in puerperal infection. J. COURBIN. *Rev. franç. de gynéc. et d'obst.*, 1922, xvii, 150. [146]
- Puerperal atresia of the vagina; coitus-dilatation of the urethra. C. STANCA. *Zentralbl. f. Gynaek.*, 1921, xlv, 1788.
- Puerperal eclampsia, with a report of a recent case. T. J. MARSHALL. *Kentucky M. J.*, 1922, xx, 280.

New-Born

- The management of the newly-born service. L. R. DEBUYS. *Arch. Pediat.*, 1922, xxxix, 205.
- Vulvovaginal prophylaxis in infants. G. MASSIMI. *Policlin.*, Rome, 1922, xxix, sez. prat., 520.
- The real danger in present-day cases of blenorrrhea of the new-born. W. MEHL. *Med. Rec.*, 1922, cl, 603.
- The post-mature child. C. B. REED. *South. M. J.*, 1922, xv, 286. [147]

Miscellaneous

- The practice of obstetrics an art. A. B. SOMERS. *Med. Herald*, 1922, xli, 116.
- Obstetrics in the home without nursing facilities. J. P. ISAAC. *J. Lancet*, 1922, n.s. xlii, 179.
- Conservation of the mother and child. B. HOPKINS. *Ohio State M. J.*, 1922, xviii, 278.
- Normal variations in the type of female pelvis and their obstetrical significance. J. T. WILLIAMS. *Am. J. Obst. & Gynec.*, 1922, lli, 345. [147]
- Obstetrical case reports. J. F. MIXSON. *J. Med. Ass. Georgia*, 1922, xi, 143.
- The dangers of hypophyseal extract in obstetrics. L. CHEINISSE. *Presse méd.*, Par., 1922, xxx, 302.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

The adrenals and morphine intoxication. J. T. LEWIS. *Rev. Asoc. méd. argent.*, 1921, xxxiv, 1104.

The adrenals and pancreatic diabetes. B. A. HOUSSEY and J. T. LEWIS. *Rev. Asoc. méd. argent.*, 1921, xxxiv, 1099.

The comparative importance of the medulla and cortex of the adrenal. B. A. HOUSSEY and J. T. LEWIS. *Rev. Asoc. méd. argent.*, 1921, xxxiv, 1092.

Tests of renal efficiency. F. KIDD. *Lancet*, 1922, ccii, 783.

Two cases of hypernephroma. A. LOORT. *Norsk. Mag. f. Lægevidensk.*, 1922, lxxxiii, 19.

Two cases of malformation of the kidney in infancy. E. R. SMITH and E. H. SHAW. *Lancet*, 1922, ccii, 737.

Unilateral fused kidneys. A. HYMAN. *J. Urol.*, 1922, vii, 321.

Plumage of a kidney with renal stasis in a child—two cases of chronic retention of urine in children with ascending uretero-hydronephrosis. A. HYMAN. *Internat. J. Surg.*, 1922, xxxv, 126.

The clinical significance of accessory renal vessels. G. PETRÉN. *Upsala Läkartidn. Förel.*, 1921, xxvi, 37. [148]

The arteries of the kidney and blood pressure. A. WALLGREN. *Acta med. Scand.*, 1922, lvi, 356.

Intermittent spasm of the renal artery. M. A. RABINOWITZ. *N. York State J. M.*, 1922, xxii, 181.

Ascending infections of the kidney. K. M. WALKER. *Lancet*, 1922, ccii, 684.

Non-tubercular kidney infections. R. P. SULLIVAN. *Ann. Surg.*, 1922, lxxv, 478.

Surgical infections of the kidney. J. N. BAKER. *J. Urol.*, 1922, vii, 309.

The diagnosis and prognosis of nephritis. E. C. REIFENSTEIN. *Arch. Diagnosis*, 1922, xiv, 240.

Note on the diagnosis of shadowless renal calculi. R. C. GRAVES. *Ann. Surg.*, 1922, lxxv, 487.

Nephrolithiasis, pyonephrosis, and impacted urethral calculus in a boy 4 years of age. H. C. CASSIDY. *Canadian M. Ass. J.*, 1922, xii, 246.

Dissolution of calculi in the renal pelvis and the ureter. R. C. BRYAN and R. D. CALDWELL. *J. Urol.*, 1922, vii, 295.

Solitary renal cysts. J. REJSEK. *Rozhledy v chir. a gynaek.*, 1921, i, 258.

Pyelitis. R. S. LOVE. *Southwest J. M. & S.*, 1922, xxx, 1.

Pyelitis. H. H. MORTON. *Med. Times*, 1922, i, 104.

Some considerations of pyelitis. E. O. GRANT. *Kentucky M. J.*, 1922, xx, 253.

The present conception of colon-bacillus pyelitis as regards treatment. E. G. CRABTREE. *Boston M. & S. J.*, 1922, clxxxvi, 530.

Pyelitis: etiology and pathology, with especial reference to internal therapy. W. C. K. BERLIN. *Med. Rec.*, 1922, ci, 575.

The value of pyelography in diagnosis. A. G. FLEISCHMAN. *Southwest J. M. & S.*, 1922, xxx, 3.

Pyelonephritis—a critical review of 100 cases. O. C. FOOTE. *California State J. M.*, 1922, xx, 131. [149]

Atrophic pyelonephritis. W. F. BRAASCH. *J. Urol.*, 1922, vii, 247.

Hydronephrosis. C. A. PANNETT. *Brit. J. Surg.*, 1922, ix, 509.

Spontaneous rupture of hydronephrosis. GAYET. *Lyon chirurg.*, 1922, xix, 72.

The function of the kidney; glycosuria. J. R. CARRACIDO. *Prog. de la clin.*, Madrid, 1922, x, 323.

Renal glycosuria. D. S. LEWIS. *Arch. Int. Med.*, 1922, xxix, 418.

Pararenal cyst. J. OKENCZYK. *Bull. et. mém. Soc. de chir. de Par.*, 1922, xlviii, 238.

Pararenal tumor. R. STINGER. *Rev. de med. y cirug. de la Habana*, 1922, xxvii, 279.

Postoperative care in surgical conditions of the kidney. H. W. E. WALTHER. *South. M. J.*, 1922, xv, 306.

Duplication of the ureter. G. KEYNES. *Brit. J. Surg.*, 1922, ix, 566.

Observations on the physiology and pathology of the ureter. W. C. QUINBY. *J. Urol.*, 1922, vii, 259.

Ureteral obstruction. K. I. SANES. *Am. J. Obst. & Gynec.*, 1922, iii, 405.

Ureteric calculi and phleboliths. R. BRIDGE. *Med. J. Australia*, 1922, i, 439.

The non-operative treatment of ureteral calculus. L. BUEGER. *Med. Rec.*, 1922, ci, 525. [149]

Presentation of an instrument for the removal of ureteral calculi. G. R. LIVERMORE. *South. M. J.*, 1922, xv, 316.

An inexpensive carrier and receptacle for ureteral catheters. E. C. SCHROEDER. *J. Urol.*, 1922, vii, 335.

Presentation of a test-tube holder for the collection of ureteral specimens. C. S. LEVY. *J. Urol.*, 1922, vii, 333.

Bladder, Urethra, and Penis

A case of large urachal cyst not communicating with the bladder. G. H. EDINGTON. *Lancet*, 1922, ccii, 791.

Extrophy of the bladder. W. W. GRANT. *South. M. J.*, 1922, xv, 297. [150]

Saligenin as a local anesthetic for cystoscopy in men. A. D. HIRSCHFELDER, A. G. WETHALL, and G. J. THOMAS. *J. Urol.*, 1922, vii, 329.

Cystoscopy in the bladder inflated with air. G. LINZENMEIER. *Zentralbl. f. Gynaek.*, 1921, xlv, 1786.

Some unusual causes of difficulty of micturition due to abnormal conditions at the vesical neck. W. K. IRWIN. *Lancet*, 1922, ccii, 841.

A short study upon sclerosis of the neck of the bladder. E. P. MANCHEGO. *Crón. méd.*, 1922, xxxix, 33.

Foreign bodies in the bladder. R. V. DAY. *J. Urol.*, 1922, vii, 243. [151]

Sacculus of the urinary bladder which ruptured during micturition. L. GORDON. *Brit. J. Surg.*, 1922, ix, 572.

Congenital diverticulum of the urinary bladder. R. M. Lecomte. *J. Am. M. Ass.*, 1922, lxxviii, 1113.

Demonstration of bladder diverticula. H. L. KRETSCHMER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 538. [151]

The treatment of Hunner's ulcer of the bladder by fulguration. H. A. R. KREUTZMANN. *California State J. M.*, 1922, xx, 128. [151]

An operative cure of a case of tabetic paresis of the bladder. R. OPPENHEIMER. *Zentralbl. f. Chir.*, 1922, xlix, 221.

The utricle in chronic urethritis. T. N. BLACK. *J. Arkansas M. Soc.*, 1922, xviii, 218.

Multiple urethral stenosis—urethral resection and urethrorrhaphy; recovery. E. BUBBA-LAY. *Policlin.*, Rome, 1922, xxix, sez. prat., 481.

Hypertrophy of the prostate as an erroneous diagnosis in congenital stenosis of the urethra at the transition from the pars membranacea to the pars prostatica. G. DEUTTMANN. *Beitr. z. klin. Chir.*, 1922, cxxv, 368.

Lympho-cystic urethral lesions: an evidence of systemic tuberculosis. P. S. FELLOUS. *J. Urol.*, 1922, vii, 103.

The use of the high-frequency current in the treatment of lesions of the deep urethra. H. M. YOUNG. *J. Urol.*, 1922, vi, 211. [151]

Urethroscopic findings in functional disorders of the genito-urinary tract. A. L. WOLBAST. *J. Urol.*, 1922, vi, 209. [151]

The method of Beck von Hasker in the treatment of balanitis hypospadias. A. M. ARQUELLADA. *Pediatría españ.*, 1922, vi, 61.

Epithelioma of the glans penis: report of a case. R. C. LOUNSBERRY. *J. Missouri State M. Ass.*, 1922, xix, 176.

Genital Organs

Spontaneous gangrene of the scrotum. J. A. HAWKINS. *Med. Surgeon.*, 1922, i, 419.

Embryonic carcinoma of the testicle, two cases. N. P. RATHBUN. *Internat. J. Surg.*, 1922, xxxv, 129.

Can the animal organism be rejuvenated by Steinach's operation? G. MARINERCO. *Presse méd.*, Par., 1922, xxx, 309.

A case of torsion of the hydroids of Morgagni. C. E. SHATTUCK. *Lancet*, 1922, ccl, 623.

The results of ligation of the vas deferens. T. J. DE VAILLE. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 266. [152]

Hyporchidia. A. HAAS. *Deutsche Ztschr. f. Chir.*, 1922, cxviii, 1.

An unusual case of stone in the posterior urethra. L. MICHEL. *Mod. Rec.*, 1922, cl, 669.

The new conception of prostatic disease. F. LEGUEN. *Arch. de med. chir. y especial.*, 1922, vii, 5. [152]

Hypertrophy of the prostate—neglected anatomy. J. A. McMILLAN. *J. Nat. M. Ass.*, 1922, xiv, 86.

The treatment of prostatic hypertrophy. G. CARISA. *Riforma med.*, 1922, xxxviii, 246.

Treatment of prostatic enlargement. W. J. WALLACE. *J. Oklahoma State M. Ass.*, 1922, xv, 110.

The management of prostatic obstruction. H. B. SWEETSER. *J. Lancet*, 1922, ii, xlii, 177.

The technique of prostatectomy and its relation to mortality: report of 163 consecutive cases of perineal prostatectomy without a death. H. H. YOUNG. *J. Am. M. Ass.*, 1922, lxxviii, 933. [153]

Successful prostatectomy at 90 years. J. B. MACALPINE. *Lancet*, 1922, ccl, 614.

Suprapubic versus perineal prostatectomy. F. HEMMANS. *California State J. M.*, 1922, xv, 113. [154]

Carcinoma of the prostate—illustrative cases. F. W. SMITH. *Internat. J. Surg.*, 1922, xxxv, 128.

Miscellaneous

The urologist and the hospital staff. WASHBURN. *J. Am. Inst. Homosp.*, 1922, xiv, 913.

Urology in relation to surgical diagnosis. J. S. WELCH. *Nebraska State M. J.*, 1922, vi, 126.

The diagnostic value of analysis of the urine. A. I. DODSON and O. O. ASHWORTH. *Virginia M. Month.*, 1922, xlix, 22.

The bacteriology of the normal infant's urine. H. F. HELMHOLTZ and F. MILLIKIN. *Am. J. Dis. Child.*, 1922, cxviii, 309. [154]

The phenosulphonephthalein test in urinary surgery. TARDO. *J. d'uroi. méd. et chir.*, 1922, viii, 106.

The effect of flood diuresis on hæmoglobinuria. H. HAEBELER. *J. Exper. M.*, 1922, xxv, 515.

The relation of focal infection to diseases of the urinary tract. H. C. BUMPUS. *Rhode Island M. J.*, 1922, v, 223.

Hematuria. E. L. YOUNG, Jr. *Boston M. & S. J.*, 1922, cxviii, 561.

The anatomy of gonorrhoea in the male: principles of treatment. W. T. BELFIELD. *J. Am. M. Ass.*, 1922, lxxviii, 1290. [155]

A urological irrigator sterilizer. A. B. CECIL. *J. Urol.*, 1922, vii, 337.

The treatment of nocturnal urinary incontinence. G. PÉRAHIA. *Arch. de gynec., obst. y pediat.*, 1922, xxv, 1.

SURGERY OF THE EYE AND EAR

Eye

Hereditary microphthalmia. W. M. ASH. *Brit. M. J.*, 1922, i, 468.

Permanence of the result of the Motal operation. H. D. BURNS. *Am. J. Ophth.*, 1922, v, 269.

Dacryocystorhinostomy by the Dupuis-Dutemps-Bourget method. A. NOCETI and R. ENRIQUEZ. *Rev. Assoc. med. argent.*, 1921, xxxiv, 1239.

A treatment for trachoma. T. O. BROOBY. *J. Oklahoma State M. Ass.*, 1922, xv, 109.

The bacteriology and anatomopathology of certain ocular infections. E. CAMPOSÓDICO and E. CIÓTOLA. *Crón. méd.*, 1922, xxxix, 9.

Subluxation of the eyeball. P. S. MERTINS. *Am. J. Ophth.*, 1922, v, 302.

Capulo-muscular advancement without incision. S. L. ZIGLER. *Am. J. Ophth.*, 1922, v, 281.

Pterygium surgery. M. GOLDENBERG. *Am. J. Ophth.*, 1922, v, 286.

The result of certain cases of symblepharon associated with traumatic pterygium. L. M. FRANCIS. *Am. J. Ophth.*, 1922, v, 288.

Primary vaccinia of the cornea. N. TOOMEY. *Am. J. Ophth.*, 1922, v, 292.

A case of aniridia. D. J. LYLE. *Cincinnati J. M.*, 1922, iii, 58.

Bilateral iridocyclitis in a case of cerebrospinal meningitis. A. NATALE. *Rev. Assoc. méd. argent.*, 1921, xxxiv, 1269.

Two series of cases of cataract. A. C. ROPER. *Lancet*, 1922, cclii, 625.

Causes of the loss of vitreous humor, prolapse of the iris, and subsequent membrane formation in cataract extractions. S. M. PAYNE. *N. York M. J.*, 1922, cxv, 466. [156]

Vitreous loss: its effect on the end result of cataract extraction and its prevention. L. W. FOX. *Pennsylvania M. J.*, 1922, xxv, 530.

Keratomalacia in southern India. R. E. WRIGHT. *Brit. J. Ophth.*, 1922, vi, 164.

A foreign body in the eye. W. H. CAMPBELL. *Cincinnati J. M.*, 1922, iii, 66.

Foreign bodies in the globe and orbit. V. W. FISCHBACH. *Cincinnati J. M.*, 1922, iii, 55.

Sarcoma of the eye, case report. C. C. MAUPIN. *Kentucky M. J.*, 1922, xv, 283.

The bullar syndrome in acute intoxication due to intra-ocular injections of cocaine. F. MORTIER and A. GUFFIN. *Presse méd.*, Par., 1922, xxx, 335. [156]

Transverse gunshot wound of both orbits resulting in a proliferating chorioretinitis in one eye. H. D. LAMB. *Am. J. Ophthalm.*, 1922, v, 285.

Diseases of the blood vessels as seen in the eye. E. JACKSON. *J. Iowa State M. Soc.*, 1922, vii, 131.

Detachment of the retina probably due to exposure to light during an eclipse. N. B. HARMAN and P. MACDONALD. *Brit. M. J.*, 1922, i, 637. [156]

Retinal changes in cardiovascular and renal diseases. J. E. ROEDER. *J. Iowa State M. Soc.*, 1922, xii, 136.

Lesions of the optic nerves consecutive to endonasal affections. H. COPPEZ. *Bull. Acad. roy. de méd. de Belg.*, 1922, ii, 58, 121. [157]

Optic atrophy in a child caused by localized meningitis without symptoms. H. L. FIFIELD. *N. York State J. M.*, 1922, xxi, 174.

On the morphology of certain developmental structures associated with the upper end of the choroidal fissure. I. C. MANN. *Brit. J. Ophthalm.*, 1922, vi, 145.

A new knife needle. J. E. HILEMAN. *Am. J. Ophthalm.*, 1922, v, 292.

Some aspects of the status of color vision. B. Chance. *Am. J. Ophthalm.*, 1922, v, 274.

Ear

Vocational, occupational, or industrial diseases of the ear, nose, and throat. J. A. DONOVAN. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 170.

The problem of middle ear mechanics. A. G. POHLMAN. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 1.

The frequency and severity of otitis and suppurations of the petrous bone in nurslings. M. RENAUD and R. ARBELTIER. *Bull. Acad. de méd., Par.*, 1922, lxxxvii, 395. [157]

Unusual complications in a case of middle ear infection. I. H. JONES. *California State J. M.*, 1922, xx, 126.

Clinical note on facial paralysis complicating acute otitis media. G. YOUNG. *Glasgow M. J.*, 1922, n.s. xv, 231.

Gravity drainage and swabs vs. irrigation and wicks in otitis media. G. E. BARNES. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 107.

Pyæmia of otitic origin. H. NEWHART. *Minnesota Med.*, 1922, xv, 228.

Mastoiditis with an unusual number of complications, with recovery. A. J. HUEY and W. H. SLAUGHTER. *Laryngoscope*, 1922, xxxii, 275.

Indications for opening the mastoid cortex. F. P. EMERSON. *Laryngoscope*, 1922, xxxii, 278.

Radical mastoid operation under local anesthesia. H. B. GRAHAM. *California State J. M.*, 1922, xx, 130.

The modern healing of mastoid wounds; its relation to mastoidectomy and postoperative dressings. H. B. BLACKWELL. *Med. Rec.*, 1922, ci, 666.

Cerebral sinus thrombosis, with psychosis; hemiplegia, death, and autopsy. W. A. JONES. *J. Lancet*, 1922, n.s. xlii, 188.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

A description of new instruments used in nose and throat surgery. J. E. SHEEHAN. *N. York M. J.*, 1922, cxv, 403.

Suction apparatus for use in nose and throat operations: demonstration. C. K. MOSELEY. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 26.

A demonstration of the physics of suction applied to the nose, with a modification of the usual technique. S. IGLAUER. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 125.

External deformities of the nose and their correction by the intra-nasal route. S. ISRAEL. *South. M. J.*, 1922, xv, 324.

Nasal correction in operations for harelip. H. MEYER. *Zentralbl. f. Chir.*, 1922, xlix, 220.

Intranasal reconstruction. F. J. PRATT and J. A. PRATT. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 46.

Abscess of the nasal septum. J. A. GLASSBURG. *J. Am. M. Ass.*, 1922, lxxviii, 1123.

Operative closure of perforations of the nasal septum. HALLE. *Monatsschr. f. Ohrenh.*, 1922, lv, 1311.

After-treatment of submucous resection. D. H. JONES. *N. York M. J.*, 1922, cxv, 494.

Treatment of tuberculosis of the nose. W. STUPKA. *Zschr. f. Laryngol., Rhinol.*, 1922, x, 553.

Sarcoma of the nose and maxillary antrum treated by deep irradiation. R. ESPINOLA. *Rev. Assoc. méd. argent.*, 1922, xxxiv, 1251.

Diseases of the accessory sinuses of the nose. R. H. T. MARSH. *J. Arkansas M. Soc.*, 1922, xviii, 215.

Nasal sinus disease in children. E. C. MITCHELL and J. J. SHEA. *Arch. Pediat.*, 1922, xxxix, 230.

Suppurative diseases of the paranasal sinuses, with particular reference to the diagnosis and treatment. E. R. VAN METER. *J. Missouri State M. Ass.*, 1922, xix, 171.

Experimental studies of the nasopharyngeal secretions from influenza patients. VII. Serological reactions. P. K. OLITSKY and F. L. GATES. *J. Exper. M.*, 1922, xxxiv, 553.

Mucocoele of the left frontal sinus; report of a case and demonstration by photographs. H. V. FORSTER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 18.

Grinding of the teeth, a pretty sure symptom of adenoid growths. C. E. BENJAMINS. *Laryngoscope*, 1922, xxxii, 223.

Rhinoscleroma. V. PARDO-CASTELLO and M. M. DOMINGUEZ. *Arch. Dermat. & Syph.*, 1922, v, 478.

Sarcoma of the ethmoid and antrum. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 23.

Throat

Peritonsillar abscess and its radical treatment. W. H. HUGHES. *Laryngoscope*, 1922, xxxii, 227.

Specimen of a cyst of the tonsil. T. J. FAULDER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 28.

Tonsillar tubercles containing intracellular concretions simulating foreign body pseudotubercles. C. V. WELLER. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 110.

Some remote effects of tonsillitis. A. B. PAVEY-SMITH. *Practitioner*, 1922, cviii, 271.

A new tonsil instrument and method of use. T. E. WALKER. *Ohio State M. J.*, 1922, xviii, 290.

Practical points in tonsillectomy. W. H. PECK. *Illinois M. J.*, 1922, xli, 265.

Precautions to be taken during the tonsil operation. H. M. HAYS. *Med. Times*, 1922, 1, 102.

Tonsillectomies in adults for rheumatism, with a critical review of results. H. HASTINGS. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 157.

The rise and progress of laryngology, its relation to general medicine and its position in the medical curriculum. W. MILLIGAN. *Brit. M. J.*, 1922, i, 247.

Progress in laryngology. H. P. MOHRER and G. BARRY. *Boston M. & S. J.*, 1922, cxcviii, 332.

War injuries of the larynx, with five case reports appended from the bronchoscopy clinic of Dr. C. JACKSON. J. C. TUCKER and R. M. LUKENS. *Laryngoscope*, 1922, xxxii, 292.

The treatment of malignant tumors of the pharynx and larynx by diathermy. F. J. NOVAK, Jr. *Illinois M. J.*, 1922, xli, 237.

The voice after the extirpation of a vocal cord. H. BYNOLK. *Notizl. Tidschr. v. Genesek.*, 1922, lxxvi, 282.

Ventriculoconstriction: a new operation for the cure of polypous paralytic laryngeal stenosis. C. JACKSON. *Arch. Surg.*, 1922, lv, 257. [158]

Hemangioma of the larynx. J. B. CAVENAGH. *Lancet*, 1922, cxli, 511.

Laryngeal tumor for diagnosis. L. POWELL. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 19.

Endothelioma of the larynx, with pathologic report on sections of the tumor by Professor S. G. Shattock. W. HOWARTH. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 12.

Sarcoma of the larynx. K. GRUBR. *Časop. lékař. česk.*, 1922, lxi, 43.

Mouth

Oral foci of infection, their diagnosis, differentiation, and systemic manifestations. R. BURNS, Jr. *California State J. M.*, 1922, xx, 120.

The pre-operative management of infants with harelip and cleft palate, and a further discussion of the deformity. R. M. ORIENTAL and C. J. LYONS. *Dental Cosmos*, 1922, lxi, 306.

The treatment of complex bilateral harelip. V. VEAU and J. LARCOMBE. *J. de chir.*, 1922, xli, 113. [159]

The covering of defects in the mucosa of the lower lip. A. JÜRGER. *Radikoly v chir. a gynaek.*, 1922, vi, 256.

The value of direct inspection in the diagnosis of chronic maxillary sinus disease. F. L. DENNIS and W. V. MULLIS. *Laryngoscope*, 1922, xxxii, 302.

Maxillary cysts. F. RIMON. *Canadian Pract.*, 1922, xlvii, 138.

The prophylactic value of using nitrous oxide-oxygen in the removal of diseased teeth to avoid systemic reaction. B. H. HARMS. *Dental Cosmos*, 1922, lxi, 402.

A primary cold abscess of the tongue. D. TADDEI. *Polichin.*, Rome, 1922, xvix, sez. prat., 459.

Actinomycosis of the tongue. G. B. NEW and P. A. FIGL. *Am. J. M. Sc.*, 1922, cxlii, 307. [159]

Perforation of the bony and membranous palate treated by prosthetics and staphylorrhaphy. F. LA TORRE. *Crón. méd.*, 1922, xxxix, 42.

The anatomical and functional results of staphylorrhaphy. V. VEAU. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 357. [160]

Anatomical and functional results of urano-staphylorrhaphy by classical methods. V. VEAU and C. RUPPE. *Rev. de chir., Par.*, 1922, xli, 81.

The influence of pulmonary tuberculosis on diseases of the mouth. H. BRADY. *Dental Cosmos*, 1922, lxi, 407.

Operative treatment of advanced cancer of the mouth and larynx. V. P. BLAIR. *Cincinnati J. M.*, 1922, iii, 34.

INTERNATIONAL ABSTRACT OF SURGERY

SEPTEMBER, 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

ASEPTIC AND ANTISEPTIC SURGERY

Henschen, K.: The Importance of Continuous Sterilization of Instruments in Operations for Carcinoma as a Protection Against Local Recurrences (*Ueber die Notwendigkeit fortlaufender Instrumentensterilisation bei Carcinomoperationen zum Schutze vor örtlichen Rezidiven*). *Zentralblatt f. Chir.*, 1922, xlix, 314.

Following amputations of the breast for carcinoma, more than one-third of the local recurrences develop in the field of the thoraco-axillary scar and its surroundings. The supramammary lymphatic rete mirabile favors the retention of cancer cells. External influences, such as the pressure of clothes, may massage cells from the borders of the proliferating zones into the superficial network.

In order to prevent recurrences all tissues in the field of operation, and especially the tumor itself, must be handled both before and during the operation so delicately that the growth will not be broken into fragments and sowed into the wound in the form of cell emulsion and the tumor cells will not be pressed more deeply into the lymph passages. Another requisite is the frequent changing of gloves during the operation, at least before the ligations are undertaken, and the use of a sterile instrument for each step in the procedure. Borr (Z).

ANÆSTHESIA

Day, M. G.: Some Studies of the Blood Before and After Etherization by the Drop Method. *Am. J. Surg.*, 1922, xxxvi, Amer. Supp., 53.

From a study of the effects of ether on the blood Day concludes that if it is carefully administered to persons whose blood is approximately normal, and the operation is skillfully performed, ether is without any marked detrimental effect upon the blood. The studies with the dark-field microscope did not show any increase of free fat in the blood following the administration of ether if the operation

was not extended beyond one hour and if not more than 5 to 7 oz. of ether were given.

The study of the blood before and after operation was made on 100 persons. The amount of ether varied from 3 to 10 oz. and the average was from 5 to 6 oz. The time of etherization varied from fifteen minutes to two hours, with an average of forty-five minutes to one hour. The blood pressure was decreased in ninety-four cases and unchanged in six. Hæmoglobin changes were observed in three instances; in one there was an increase, and in two a decrease. None of the series of cases showed any change in the blood platelets.

From a study of the blood in the three fatal cases of the series the author is convinced that the appearance of both the white and the red cells before operation is of prognostic value. In all of these cases the red cells were crenated and distorted and the whites large and flabby; in the third the abnormality was less marked. The latter was a case of bilateral ovarian cysts twisted on their pedicles and accompanied by gangrene. The patient developed paralysis of both legs and died three weeks after the operation. A history of a spinal cord lesion was given.

The records of six patients operated upon under local anæsthesia (0.5 per cent cocaine) show a fall of blood pressure in every instance. The hæmoglobin was unchanged in four, increased (5 per cent) in one, and decreased (5 per cent) in the other. The blood platelets were unchanged in all six. One of the patients, a man aged 65 years, died following a prostatectomy. In this case the red and white cells showed the same degenerative changes as in the other series both before and after operation.

The importance of pre-operative study of patients was impressed upon the author by the case in which 10 oz. of ether were given. The operation consisted of amputation of the cervix and repair of the perineum. It was completed in about one hour, but profuse oozing of blood required another hour for its control. The patient recovered. In the

examination of the smear taken before operation almost complete absence of blood platelets was noted. This, as Day afterward learned, is supposed to influence the clotting power of the blood. Therefore patients showing a deficiency of blood platelets are now given calcium chloride in dram doses four times daily for two or three days before operation. The normal number of blood platelets is generally given as 1,00,000, and a number below 100,000 is considered to indicate a predisposition to haemorrhage.

BEN MORRIS, M.D.

Flemming, Barton, Boyle, Chablocott, Page, and Shipway: Discussion on the Utility and Limitations of Nitrous-Oxide Anaesthesia.
Proc. Roy. Soc. Med., Lond., 1932, XX, Sect. Anesth., 1.

In opening the discussion Fleming pointed out that ether alone can be used safely by the average anaesthetist, but nitrous oxide is safe only with the addition of some other drug, such as ether, morphine, hyoscine, etc. It is therefore better for the student to learn by adding nitrous oxide to ether rather than by adding ether to nitrous oxide. Although nitrous oxide is non-toxic, its physiological and pharmacological properties make it a powerful drug and an indifferent relaxant. Therefore correct dosage is of paramount importance. In order to obtain relaxation without cyanosis, oxygen should be used instead of air. Ether added to gas and air may give satisfactory results, but the administration of nitrous oxide and oxygen without ether or other relaxant requires a high degree of skill on the part of the anaesthetist. Statistics do not distinguish clearly between fatalities occurring under nitrous oxide-oxygen alone and those resulting when a mixture of nitrous oxide and ether relaxants is used. Favorable results are reported from clinics in which alkaloids and local anaesthesia are employed to such an extent that the nitrous oxide plays a secondary part. These apparently support the view, already expressed, that nitrous oxide is about when used in conjunction with other agents.

Barton stated that the use of gas and oxygen alone may be followed by insufficient relaxation, sudden unaccountable fluctuation in the depth of the narcosis, and occasionally vomiting without any apparent provocation. He now uses them as adjuncts to ether, beginning with the gas and using ether as the indications arise in the operating room. He fails to see that gas has any influence in the mitigation of shock, the good results, in his opinion, being due rather to the morphine, the oxygen, and perhaps the ether. He considers the method of advantage in operations on the extremities and on the head and neck. If the anaesthetic is administered intratracheally. For throat operations, the depth of narcosis is not sufficient. The same is true in abdominal work unless the method is combined with spinal or infiltration anaesthesia.

Boyle agreed with Barton in objecting to the term "gas and oxygen." He suggests the designation "gas-oxygen-ether or gas-oxygen CE," as the

case may be. With the latter combination he has had excellent results in gastric operations because it is less apt to engorge the throat and to cause respiratory embarrassment than a rash administration of ether. Shock is also reduced by this method.

Chablocott advocates the use of gas and oxygen only in combination with local anaesthesia, especially in abdominal work. He attributes the muscular relaxation and the absence of shock to the nerve blocking, the nitrous oxide doing little beyond keeping the patient unconscious. In abdominal work he has therefore abandoned the use of gas and oxygen alone. For other regions he finds it excellent to induce anaesthesia with gas and ether and then continue with gas and oxygen to minimize the amount of ether inhaled. The apparatus is not of much importance; the simpler, the better. In order not to distract the student's attention from the patient in teaching, he uses a Clover gas and ether apparatus with an extra tube for oxygen.

Page warmly advocated the use of a water-ford apparatus first demonstrated by Boothby in 1912. He advised the induction of anaesthesia by the use of a mixture of nitrous oxide, oxygen, and ether. Very often no further administration of ether will be necessary, but if difficulties arise during the administration, they must be overcome by the addition of ether, never by pushing the nitrous oxide.

The accidents of anaesthesia, according to Shipway, are due mainly to the effects of acute or long-continued anoxaemia upon the respiratory center which is more quickly and more certainly paralyzed by want of oxygen than the heart. In difficult cases it is his practice to increase the oxygen supply and to add a little ether to maintain the anaesthesia, rather than persist with gas and oxygen alone. He does not believe that the method is absolutely contra-indicated in diabetes, but stated that it is not suitable in the presence of arteriosclerosis or in active or recently healed tuberculosis. In the latter the rapid breathing may lead to a spread of the disease or to a fresh outbreak. Gas and oxygen no doubt are the best means of combating and controlling shock. This was proved by experience in the casualty clearing stations during the war.

BEN MORRIS, M.D.

Mennell, Z.: Anaesthesia in Intracranial Surgery.
Proc. Roy. Soc. Med., Lond., 1932, XX, Sect. Anesth., 13.

For intracranial operations the author has adopted the intratracheal route and ether as the anaesthetic.

Intratracheal ether anaesthesia is safe for the patient, allows the surgeon to work unimpeded by the anaesthetist, and permits the anaesthetist to make blood-pressure readings and other observations. It is applicable to all cases of cerebellar, pituitary, occipital, and high spinal lesions.

Its successful conduction requires careful attention to technique, such as a minimal and constant dosage of ether, a gradual change in the vapor

concentration when necessary, a sufficient supply of oxygen, a free air way, and the prevention of vomiting. For the accurate interpretation of the blood-pressure readings, the disappearance of the radial pulse, and the patient's general condition very close cooperation between the surgeon and the anesthetist is essential.

Since the armistice the author has used intra-tracheal ether in seventeen cases of pituitary tumor, forty-nine cases of cerebellar tumor, and sixty-three cases of supratentorial tumor for one surgeon alone, and has employed it also in numerous other cases.

G. R. McACLEIFF, M.D.

Waters, R. M.: Lessons from Anæsthetic Accidents and Near Fatalities. *Am. J. Surg.*, 1922, xxxvi, *Anæst.* Supp., 57.

The anesthetist's best insurance against casualties is the proper interpretation of a careful pre-operative physical examination and of observations made during anesthesia. The essential points of inquiry before operation are: the time of the last meal and the nature of the food taken; the condition of the lungs, heart, nose, mouth, and throat; the patient's mental attitude, the stability of his nervous system, and his general powers of resistance in relation to the extent of the operation to be performed. In all doubtful cases the cardiac reserve must be determined before and during anesthesia. Frank shock on the operating table should not be allowed to persist more than one-half hour without treatment.

BEN MORGAN, M.D.

Smith, G. F. R.: Some Observations on Post-Anæsthetic Complications. *Brit. M. J.*, 1922, i, 513.

In 571 cases operated upon under general anesthesia there were four deaths due, respectively, to shock, bronchopneumonia, acidosis, and acid intoxication. In the study of postoperative complications special attention was paid to the three most common phenomena: chest trouble, flatulence, vomiting. In 441 gynecological cases, 221 major and 220 minor vaginal operations, in which anesthesia was induced with warm ether with the addition of a small quantity of chloroform when necessary, chest complications occurred in twenty-two cases (4.5 per cent) but were serious in only five (1.1 per cent). In one of the five cases they caused death. Flatulence was present in 5.4 per cent and vomiting in 20.1 per cent.

In seeking the cause of the chest complications which occurred in spite of all precautions, the following possible factors were noted: pre-operative cough, cyanosis during operation, an excessive amount of ether required (one case), light anesthesia, and traction on the peritoneum.

The pre-operative administration of calcium chloride proved of value in one instance. The patient at the first operation developed bronchitis, and on her return two months later for a hysterectomy was given the mixture mentioned; neither cough

nor vomiting occurred after the operation. Modification of the pre-operative treatment proved also to reduce flatulency. In a series of 266 cases the pre-operative treatment consisted of castor oil given thirty-six hours before the operation, an enema eight hours before, and morphine $\frac{1}{4}$ gr. and atropin $\frac{1}{100}$ gr. one hour before, together with a light liquid diet the day before. Flatulence occurred in 6 per cent of the cases. In the next 175 cases the enema was omitted, the dose of morphine reduced, and a more generous breakfast of tea and toast was followed by 1 oz. of syrup of glucose one hour before operation. Flatulence occurred in only 4.5 per cent. The same modification, however, caused an increase from 17.2 to 25.1 per cent in the post-operative vomiting. In the entire series, vomiting took place in 27.1 per cent of the cases of major operations and 12.7 per cent of the cases of minor operations. It persisted for several days after operation in only 7.2 per cent. In the others the discomfort never lasted more than six hours.

For the remaining 130 cases a comparison is made between the "open" and the "closed" method of anesthetization. With the use of the open mask vomiting occurred in 51.2 per cent of the cases. With the use of the Ormsby inhaler it occurred in only 32 per cent, but in 10 per cent continued for more than six hours. Although contrary to general experience, these figures seem to prove that in the hands of the expert the "despised bag" has much to commend it.

BEN MORGAN, M.D.

Laurenti, T.: Postoperative Acetonuria (*Contributo clinico all'acetonuria postoperatoria*). *Policlin.*, Rome, 1922, xxix, sez. chir., 282.

The author gives a brief historical review of the occurrence of acetone in the urine, including post-operative acetonuria. On the basis of 103 cases collected in 1907 Longo drew the following conclusions:

1. Postoperative acetonuria is an almost constant phenomenon but is temporary.

2. Causes of acetonuria are narcosis, trauma, and fasting.

3. The postoperative course is not influenced by the appearance of acetonuria.

4. Postoperative acetonuria is a phenomenon probably related to functional or anatomical changes in the central nervous system.

Laurenti has studied the condition in 160 cases operated on in the surgical clinic of the Royal University of Rome. Eighty-five of the patients were men and seventy-five were women. The incidence of acetonuria with regard to the type of anesthesia was as follows: (1) spinal anesthesia, 84 per cent; (2) chloroform anesthesia, 81 per cent; (3) local anesthesia, 15 per cent; (4) ether anesthesia, 100 per cent (used in only one case).

The following summary of the findings is given:

1. Postoperative acetonuria was an almost constant phenomenon in spinal and chloroform anesthesia, but much less frequent in local anesthesia.

4. Its duration usually varied from two to five days, rarely persisting six days, and in only one case continuing for seven days.

5. The acetoneuria did not exert any manifest influence upon the course of the postoperative convalescence.

6. The nature of the disease and the character of the operation were of no importance in the development of the acetoneuria.

7. While not appeared to have no influence, youth seemed to be of some importance as in young

patients the condition persisted longer and was more severe than in older patients.

8. In the majority of cases acetoneuria disappeared when the fluid diet was changed to a normal diet.

9. The increase in temperature which occurred in the first twenty-four to forty-eight hours, especially in spinal anesthesia, did not manifestly influence the phenomenon.

10. The intensity of the acetoneuria was always dependent upon the type of anesthesia rather than the nature of the operation.

W. A. BRENNAN.

SURGERY OF THE HEAD AND NECK

HEAD

McArthur, G. A. D.: Diffuse Cranial Osteomyelitis as a Sequela to Nasal Accessory Sinus Suppuration. *Med. J. Australia*, 1922, 1, 478.

Inflammation of the nasal accessory sinuses complicated by diffuse cranial osteomyelitis is usually fatal. The author gives McKenzie's report of forty-four cases. When the complication followed operation the mortality was 100 per cent, while in other cases it was 50 per cent.

The occurrence of osteomyelitis after sinus infection is still unexplained. When once the infection has become well established it is practically limitless. Thrombophlebitis of the diploic veins is suggested as a cause of its rapid and wide extension. The infection usually takes the form of a purulent rarefying osteitis. The diploë becomes granulation tissue covered with pus. The pus burrows its way to the outer and inner surfaces of the cranium and becomes localized as multiple separate abscesses between the bone and dura or between the bone and pericranium. The pericranium may break down, permitting the abscesses to filter into the soft tissues of the scalp where they produce the characteristic doughy or puffy swellings.

The brain and soft tissues are protected because the dura mater withstands infection more effectively than the pericranium.

Extension of the infection is usually upward through the vault, and the entire base may become involved.

No metastatic abscesses result except when septic thrombosis of the diploic veins affects the superior longitudinal, circular, or lateral sinuses. In addition to extra-dural abscesses and pachymeningitis the local infections frequently cause leptomenigitis, cerebral abscesses, intracranial thrombophlebitis, and subdural abscesses.

Leptomeningitis is common in basal infections, the portal of entry being the nerve sheaths of the olfactory, optic, or trigeminal plate.

The acute form develops rapidly with a continuous fever and its duration is from three to six months. Spontaneous osteomyelitis is usually associated with it. The chronic form is insidious in onset. Abscess formation with fever is followed by

periods of quiescence which may last for months and then suddenly flares up again.

Osteomyelitis as a postoperative complication develops slowly. The line of incision breaks down with slight pus formation. The picture differs from that of acute re-infection. Pale and puffy swelling develops. The bony structures in the sinuses are a dead white, and when they are incised, underlying pus is found. In the soft tissues an edematous swelling is found remote from the site of infection. The swellings are usually caused by discrete cranial abscesses separated by what appears to be healthy tissue.

Radical surgery which removes all the diseased bone and a considerable margin of healthy osteoid tissue is the only measure which brings about a cure. Resection of large areas of the vault will be followed by regeneration of healthy bone if all the diseased bone is removed.

S. J. HARRISCH, M.D.

Boyd-Snee, H.: Streptococcal Osteomyelitis of the Temporal Bone. *J. Indiana M. Ass.*, 1922, XV, 147.

Upon the basis of 266 cases, in twenty-nine of which the condition was bilateral, the author concludes that streptococcal osteomyelitis of the temporal bone is a clinical entity and should be diagnosed as such. The etiological factor is a streptococcus of any type.

In many of the cases attention was first attracted to the diseased region by an acute otitis media or an acute exacerbation of a chronic otitis media, which supervened in the course of one of the following acute infectious diseases: measles, eighty-seven cases; acute nasopharyngeal infection, 108 cases; acute streptococcal pneumonia, fifteen cases; influenza, twenty cases; epidemic parotitis, two cases. In 160 cases the same streptococcus which was recovered from the tympanic exudate before operation was obtained either in pure culture or mixed with other organisms from the infected cancellous bone through the operative wound. Hence the author considers that recovery of the streptococcus from the tympanic exudate in the presence of an acute inflammatory reaction in the middle ear is pathognomonic of acute osteomyelitis beyond the boundaries of the middle-ear tract, i.e., in the medullary and pneumatic spaces in the petrous and squamous

portions as well as the mastoid process of the temporal bone. The discovery of the streptococcus also excludes the diagnosis of uncomplicated acute otitis media and acute mastoiditis. Acute streptococcus osteomyelitis of the temporal bone is a regional infection and carries a guarded prognosis.

Invasion occurred by contiguity or by the blood stream. The condition was characterized early by inflammation of the vascular structures of the bone. The medullary spaces and the lining of the pneumatic cells were involved. The granulations were bathed in sero-muco-sanguinous exudate. The periosteum was seldom affected in the initial reaction. The dura became primarily involved in two cases.

The condition developed into an osteitis and the periosteum and meninges became involved secondarily. Thirty cases had direct intracranial extension as follows: perisinusitis, seventeen; sigmoid sinus thrombophlebitis, five; upper petrosal sinus thrombophlebitis, one; temporo-sphenoidal abscess, five; cerebellar abscess, one; extradural abscess in the middle fossa, four; and streptococcic leptomeningitis, twenty-one. Extradural extension produced a parietal abscess in one case, a subtemporal abscess in two cases, a cervical abscess in three cases, facial paralysis in four cases, and erysipelas in fourteen cases. Secondary complications which developed in other parts of the body by way of the blood stream included metastatic abscesses, arthritis, optic neuritis, nephritis, pleuritis, endocarditis, myocarditis, cellulitis, and general diffuse erythematous dermatitis.

The usual symptoms of acute suppurative mastoiditis are not a guide in the diagnosis. Roentgenograms were of value only after the occurrence of suppuration and bone destruction.

In the cases reviewed there were twenty-four deaths. Twenty-two autopsies were performed. The causes of death were pneumonia, metastatic abscesses, leptomeningitis, cerebral abscess, cerebellar abscess, and sinus thrombosis.

The author's method of obtaining cultures from the middle ear was as follows:

The canal was cleansed of blood and exudate with salt solution, alcohol, and dry sterile cotton. A sterile Siegel otoscope was then introduced which produced a negative pressure sufficient to draw a bead of exudate through the hole in the tympanic membrane. After removal of the otoscope the exudate was caught on a sterile cotton swab with the aid of a sterile speculum.

In the author's opinion an acute streptococcic osteomyelitis followed an acute streptococcic nasopharyngeal infection in 40 per cent of the cases in military practice and 61 per cent of those in civil practice.

WALTER C. BURKET, M.D.

Vlasto, M., and Owen, S. A.: A Case of Latent Intracranial Abscess Associated with Double Acute Mastoiditis. *Lancet*, 1922, ccl, 992.

The authors present the case of a boy, 8 years of age, who at first developed all the symptoms of a

severe acute infection. Later the picture was obscured, a double mastoiditis becoming complicated by what appeared to be meningitis. Operation for the relief of the mastoid symptoms was apparently beneficial but the symptoms of meningitis persisted. Repeated spinal punctures withdrew only clear fluid which, on culture, was found to be sterile. Twelve days later incision of an abscess on the dorsum of the hand revealed the presence of staphylococci and Gram-positive diplococci. Four days later an abscess on the buttock was opened and the pus on culture showed the same organisms. Drainage of these abscesses was followed by the subsidence of the symptoms.

Twenty-five days after the mastoid operations the temperature and respiratory rate were normal but the pulse rate was 100-112. A week later there was diffuse frontal headache associated with vomiting not of the cerebral type. The temperature became subnormal and the pulse rate slow. There was a very marked absorption of all adipose tissue with wasting and hypotonicity of the limbs. Choked discs were then discovered for the first time. An exploratory operation through the mastoid incisions failed to disclose an abscess of the middle fossæ or in the brain tissue of the sphenoidal lobes. Cultures of the subarachnoid fluid yielded Gram-positive diplococci. Headache still persisted but was mild. Vomiting ceased and the eye symptoms disappeared.

About three weeks after the second operation there was headache localized in the right frontal region and associated with increased papilloedema and vomiting. The new symptoms pointed to intracranial pressure obscured by clonic movements of the left upper extremity. All reflexes were present. An operation to explore the cerebellar fossæ failed to reveal abscesses or other causative factors for the symptoms and the patient died forty-eight hours later.

The autopsy showed the meninges of the brain adherent to the decompression wounds. The meninges formed an abscess wall anterior to the right decompression wound. A pus pocket confined between the dura and the pia arachnoid covered the lateral aspect of the brain and bordered on the superior longitudinal sinus. Evacuation of the abscess yielded pus which on culture showed Gram-positive diplococci and staphylococci. The meninges were adherent over the right superior temporal gyrus and two-thirds of the precentral and postcentral gyri. The convolutions of the brain were normal under the adherent meninges but in other areas were flattened or presented the appearance of tissue removal.

S. J. HARBRICHT, M.D.

Kopetzky, S. J., and Schwartz, A. A.: A Case of Intradural Cerebellar Abscess Complicated by Acute Labyrinthitis: A Case of Labyrinthitis Complicating Chronic Mastoiditis. *Laryngoscope*, 1922, xxxii, 374.

The case of intradural cerebellar abscess complicated by acute labyrinthitis was that of a 25-

year-old man who, while a soldier in France five years previously, suffered an attack of frontal headache, high fever, and pain in the right ear followed by spontaneous rupture of the tympanic membrane. A profuse, purulent, middle-ear discharge persisted for twenty-five days. A swelling behind the ear, which then appeared, was operated upon in a German prison hospital. After three months the discharge ceased and the mastoid wound was healed. The patient then remained well until the present illness, which began with vertigo and a foul discharge from the ear.

Examination revealed a large marginal defect of the right ear drum, marked impairment of hearing in the right ear, and a normal and active labyrinth. When the patient was rotated to the right with his head erect, his left hand did not postpoint properly, and when he was rotated to the left with his head erect the right hand did not postpoint correctly. When the right ear was irrigated with cold water with the head first erect and then back 45 degrees, neither hand postpointed, and when the left ear was similarly irrigated the right hand did not postpoint. Cerebellar involvement was suspected.

Within a week attacks of dizziness and severe pain in the mastoid region developed. From the upper angle of an exploratory incision made at the site of the mastoid scar, a small quantity of clear fluid, apparently cerebrospinal fluid, escaped. At this point the dura was adherent to the skin over an area 1 in. in diameter which appeared to be the site of an old abscess cavity. The dura covering the cerebellum projected into the wound, and when an incision was made, pus escaped from an intradural abscess. A small sinus extended from the mastoid into the middle ear, which was filled with a cholesteatoma.

A radical mastoid operation was done and the wound left open. On the first day after the operation the patient suffered from nausea, vomiting, dizziness, and severe headache, and his temperature was 101.8 degrees F. On the second day there was vomiting with spontaneous horizontal nystagmus, and vertigo (the room seemed to turn to the left). The patient was fairly comfortable and free from symptoms while lying on his left side. The spinal fluid showed albumin, globulin, 5 per cent polymorphonuclear cells, 95 per cent mononuclears, and no bacteria; it reduced Fehling's solution. On the third day the patient was comfortable and showed no evidence of cerebellar involvement. After the first week the temperature remained normal. On the nineteenth day a nystagmus and right facial paralysis developed but had disappeared by the end of two weeks. For one month the patient was compelled to lie on his left side to avoid extreme vertigo.

About two months later he developed severe headache and veered to the left in walking. The mastoid wound was healed. There was a slight purulent middle-ear discharge and a slight spontaneous

rotary nystagmus. The right labyrinth was completely destroyed and gave no response upon caloric stimulation. Rotarium tests showed a marked diminution of vertigo and nystagmus. Except for effects from the right ear, postpointing was the same as before the operation. Apparently the intradural abscess was healing. Two days later the entire mastoid wound broke down and there was a profuse discharge from the wound and the middle ear. The symptoms then disappeared and the wound healed in two weeks.

The case of labyrinthitis complicating chronic mastoiditis was that of a man, also 25 years old, who, at the age of 9 years, had a purulent discharge from the right ear. Up to the age of 20 a foul odor from the right ear could be detected, but there was no visible discharge. The condition had not been treated. Five years ago a very profuse discharge suddenly appeared. For fifteen minutes the patient had numbness of the right side of the face and the right hand and was unable to touch objects with his hands correctly. During the following year polyps were removed from the right ear fourteen times, but hearing became progressively worse. The foul, purulent discharge persisted, and very severe attacks of vertigo in which the room seemed to turn to the right occurred three or four times a week. Lying on the right side occasionally gave relief. There was severe headache which was more marked on the right side. The patient veered to the right in walking.

Three weeks ago a discharge from the left ear, unassociated with pain, previous illness, odor, or loss of hearing, was noticed. On examination, the right ear showed a large marginal perforation; the entire drum and the greater part of Shrapnell's membrane had been destroyed, the ossicles were gone, and granulations filled the middle ear. With a noise instrument in the left ear, the patient did not hear with the right ear. The left ear showed a small central perforation, a thin purulent discharge, and good hearing. There was decided spontaneous left horizontal nystagmus, which was especially marked when the patient looked toward the left, spontaneous postpointing to the right with the right hand, and postpointing off with the left hand.

The patient veered to the left in walking, had an unsteady gait, marked swaying to the right, and slight ataxia of both hands. The right arm and grip were weaker than the left and the left leg less steady than the right leg. A tentative diagnosis of cerebellar abscess was made and operation was advised, but was refused. The author reports the case because of the evidence of the destruction of the labyrinth as shown by the fact that the function of the cochlea was completely destroyed and the labyrinthine tests demonstrated complete absence of response from the right side (the turning tests showed marked diminution of vertigo with less than half the normal nystagmus and the caloric tests elicited no responses from the right ear).

WALTER C. BURKE, M.D.

Dew, H. R.: *Tumors of the Brain: Their Pathology and Treatment: An Analysis of Eighty-Five Cases.* *Med. J. Australia*, 1922, I, 515.

The author has analyzed the cases of brain tumor in adults which were treated during the last ten years at the Melbourne Hospital, Australia. Most of the patients were males. The growths were situated more frequently on the left side than on the right side. Frontal and cerebellar growths were equal in number and constituted 50 per cent of all tumors. The majority of non-verified tumors were frontal and deep-seated supratentorial growths. Cerebellar growths were recognized most frequently. Taking operative procedures as indicative of accuracy of diagnosis, the side involved was determined correctly in thirty-four of thirty-six cases of verified tumors. Tumors just above or below the tentorium caused diagnostic errors. Generally the diagnosis of tumor was not made until gross pressure symptoms and signs had developed.

Because of the great variation in the mentality and temperament of the patients, the date of the first symptom was only approximate. The patients paid little attention to early symptoms, and loss of judgment, variations of temper, irritability, forgetfulness, or loss of abstract conception were usually unnoticed until severe headache or vomiting occurred. Headache was present in every case and was the first symptom in fifty. Three patients with frontal tumors had occipital headaches. Thirty per cent of the cerebellar growths were associated with frontal headache. Mental changes were noted in fifteen cases, in ten of which there was a tumor of the frontal lobe on the left side. Five patients had aphasia. In nine cases the first symptoms were mental. Only one subtentorial tumor was associated with well-developed mental symptoms.

Convulsions occurred in twelve cases and were the initial symptom in eight. Questionable cerebellar ataxia was noted in three cases of frontal tumor. Ocular muscle paralysis due to involvement of the sixth cranial nerve occurred in eighteen cases, and paralysis due to involvement of the third nerve in three. There was no constant relationship between the side of the paralyzed nerve and the site of the tumor. Optic neuritis was noted in forty-six cases and was mentioned as absent twice. Vision failed in nine cases. The reflexes were remarkably variable and often misleading. Absence of the abdominal reflexes, when noted, gave the most reliable and constant indication. Nystagmus was present in sixteen cases and absent in three cases of cerebellar tumor. Frontal tumors appeared at all ages, most frequently in middle life, while cerebellar growths developed earlier. The greatest incidence of all tumors was between the ages of 30 and 50 years.

Fifty-five per cent of all the tumors were gliomata. Some cerebellar cyst walls contained gliomatous tissue. There were six endotheliomata—five dural and one hemangio-endothelioma—and all except one were supratentorial. A tuberculoma was found in a

patient with generalized tuberculosis. In Australia tuberculomata are comparatively rare in adults and found only occasionally in children. No cerebellopontine-angle tumor was seen at autopsy. There was one extra-cerebellar tumor, a dural endothelioma, on the under surface of the tentorium, which caused both cerebellar and frontal signs. Multiple hydatid cysts were found in two young patients. Gummata were noted four times, and because of their resistance to mercury and iodide treatment and their non-recurrent nature, the author advised surgical removal. There were neoplasms secondary to cancer of the breast and lungs and melanoma of the skin. The ventricles were dilated in six instances.

The ideal site for craniotomy was believed to be over the tumor. When it was impossible to locate the tumor, a palliative subtemporal decompression was done. Bitemporal decompression was advantageous. Dural endotheliomata were most favorable for excision. Cerebellar cysts were evacuated.

Six patients died within twelve hours of the operation. Four died from meningitis—two of these following a two-stage operation. The site of the tumor was not verified in eight cases operated upon. These patients developed cerebral hernia and seven of them died. Three patients died suddenly of respiratory failure. All of the others showed bilateral spasticity. In many cases the lesion was far advanced and operation was performed as a last resort. In fourteen cases in which operation was done for the removal of a supratentorial growth no relief resulted in five and death occurred within six months, while in nine cases relief was given from continual headache and there was improvement in sight and the mental state, but the average time of survival of nine months was not increased. Twelve subtentorial operations gave good temporary results.

The author concludes that operative interference was delayed too long because of delayed diagnosis, and urges early exploratory surgical treatment whenever there are signs of increased intracranial pressure. If the patient's condition remains good and the blood pressure high, excision of the growth should be completed in one stage. The author considers that by the time gliomata are diagnosed they are surgically irremovable. He advises excision of the cerebellar cyst wall. Hydatid cysts, if accessible, are amenable to surgery.

With the fuller adoption of the new aids to diagnosis, few subtentorial tumors will remain undetected and localization will become more accurate.

WALTER C. BURKET, M.D.

Dandy, W. E.: *The Treatment of Non-Encapsulated Brain Tumors by Extensive Resection of Contiguous Brain Tissue.* *Bull. Johns Hopkins Hosp.*, 1922, XXXII, 188.

In the treatment of gliomata Dandy resects the tumor *en masse* with a surrounding zone of normal brain tissue. The entire right or left frontal lobe has been removed without any observable mental

or other after-effect. Excision of the whole right temporal or right occipital lobe has been followed by only a contralateral hemianopsia hemianopsia. In two instances the right temporal and the occipital lobes were resected. Practically complete resection of one or two lobes of the cerebral hemisphere has been done two times. Partial resection of a lobe with the tumor is frequently all that is necessary. The exact amount of brain tissue which must be removed depends upon the position, size, and character of the tumor. There is very little operative risk in partial or even complete resection of lobes. The two largest craniotomies were done when the patients were unconscious, complete recovery followed.

Two boys, 10 years old, are well and working four years after the removal of a tumor with all of the vermis and about half of each lobe of the cerebellum. Resection of the cerebellum is more serious than those of the cerebrum, but in adults the mortality has been very low. Dandy is not prepared to state what parts and how much of the cerebellar lobes can be removed without causing symptoms.

Only time can tell whether gliomata of the cerebrum and cerebellum can be permanently cured by this method. Several patients are living three and four years after the operation without signs of recurrence.

In several cases the face center and occasionally the arm center of the pre-Rolandic area has been removed. In these cases Broca's area has been excised apparently completely and to a depth of 2 or 3 cm. Complete motor aphasia resulted, but the power of speech began to return in a week and became normal. In two cases the right occipital lobe was resected but not far enough to cause visual aphasia. It has never seemed justifiable to resect the left occipital lobe to cure a patient of tumor. In several cases the various brain ventricles have been resected. If the dura and scalp are closed very carefully, the open ventricle will do no harm.

When tumors in the cerebral hemispheres are localized before paralysis develops, they can be removed without causing paralysis. If paralysis is present at the time of operation, it will usually become less after the tumor has been removed.

WALTER C. BOKER, M.D.

Cushing, H.: A Large Epidermal Cholesteatoma of the Parietotemporal Region Deforming the Left Hemisphere Without Cerebral Symptoms. *Surg. Gynec. & Obst.*, 1941, 100, 117.

Cholesteatomata arise from embryonic epithelial implantations. They are located in the leptomeninges, more commonly in the cerebellum overlying the fourth ventricle, and in the infundibular region, but may arise in the cerebellopontine region or sylvian cleft. If they contain hair, they have the characteristics of the purely tumor of Cruevelhier.

The epidermal cholesteatomata of the mastoid region are probably similar to those found elsewhere

in the skull. As these tumors originate between the two tables of bone, the bone becomes thinned by their growth, and as the inner table becomes absorbed the tumor sometimes attains great dimensions, deforming the brain.

Because of the associated bone defect these tumors can be recognized by the roentgen ray, and may be removed if access is gained outside of the thinned bone area. The growth should be removed completely with its capsule and without opening it.

The author describes the cases found in the literature. His own case was that of an active and intelligent army officer who had slight dragging of the left foot which he attributed to a fall from a horse. In September, 1916, four months after this accident, a small, slightly tender depression was noticed in the left temporo-parietal region. Subsequently this attained the size of the finger tip. In September, 1929, he noted slight pain in the back of his neck, and later soreness in the cranial defect. The two diagnostic points of importance were: (1) the bony defects present for two years and revealed by the X-ray; and (2) the slight neuromuscular disturbance on the same side of the body.

Operation was performed December 14, 1929. A large bone flap was turned down, the tumor, the size of an adult fist, was removed, and the wound closed without drainage. Complete recovery resulted.

MARCUS HOBART, M.D.

Protopopoff, C. L.: The Importance of Brain Surgery in Diffuse Hyperkinesia (Die Bedeutung der Hirnchirurgie bei diffuser Hyperkinesie). *Neurochirurg. d. Sowjetunion in der Ges.*, 1921.

Of the Russian investigators on hyperkinesia Darkschewitsch and Rasmowsky occupied themselves chiefly with surgical interference in epilepsy. The literature on the subject of surgical interference in diffuse hyperkinesia is very limited. In this article the application of the Horsley operation to three forms of diffuse hyperkinesia—Koschewnikow's epilepsy with bilateral convulsions (epilepsia partialis continua), bilateral idiopathic athetosis (double athetosis), and Parkinson's disease (paralysis agitans)—is reported. There is no record in the literature of a case of double athetosis or Parkinson's disease treated by unilateral excision of the centers affected by the hyperkinesia. In the selection of the hemisphere for the surgical interference the difference in the temperature of the two sides of the body was taken into consideration in addition to the other cortical symptoms; the higher temperature was found on the side of the greater disturbance. The increase of temperature corresponded to the increase of hyperkinesia.

The results of surgical interference in diffuse hyperkinesia may be summarized as follows:

1. The hyperkinesia disappeared or decreased to the minimum on the side of the excision and diminished on the opposite side (in all the three described forms).

2. Concomitant motions disappeared (double athetosis).

3. The symptoms of rigidity and forced motion were diminished (Parkinson's disease).

4. The epileptic attacks became less frequent and the localization of the incitation of the attack varied (Koshevníkoff's epilepsy).

5. The patients were enabled to use the extremities whose centers had been excised (Koshevníkoff's epilepsy).

The surgical treatment made possible: (1) the testing of the physiological results with regard, for example, to the incomplete crossing of the cortico-muscular tracts; (2) interesting pathologico-physiological observations on the change in the physiological reaction of the cerebral cortex to stimulation by the faradic current; (3) pathologico-anatomical investigation of this and other forms of hyperkinesia and microscopic study of the excised cerebral cortex which indicated the encephalitic nature of the case of Koshevníkoff's epilepsy; and (4) a study of the effect of the diseases of the cerebral cortex upon the temperature of the body.

HESSE (Z).

Ott, W. O.: Cranial Nerve Palsies Produced by Tumors in the Region of the Jugular Foramen. *Surg., Gynec. & Obst.*, 1922, XXXIV, 597.

The author reports three cases of unilateral paralysis of the larynx with involvement of the last four cranial nerves of the same side due to extra-cranial tumors in the retromandibular fossa and jugular foramen, two of which had their origin in the deep portion of the parotid gland. A tumor was removed by operation in one case only.

Unilateral associated laryngeal paralysis was first described by Jackson in 1864 and since then the condition associated with paralysis of the soft palate and tongue on the same side has been known as "Jackson's syndrome." In 1891 Avellis described a group of cases presenting the syndrome of palato-laryngeal hemiplegia. In 1897 Schmidt described still another combination of paralysis associated with laryngeal hemiplegia. Vernet recently called attention to a combination of unilateral paralysis of the three nerves passing through the posterior lacerated foramen. Collet reported unilateral extra-cranial paralysis of the last four cranial nerves due to trauma. Numerous combinations of unilateral paralysis of the larynx associated with paralysis of one or more of the last four cranial nerves have been reported.

The diagnosis is difficult and at times it is impossible to differentiate extra-cranial lesions of the last four cranial nerves from bulbar or intra-cranial lesions, but usually in cases of intra-cranial lesions other symptoms referable to involvement of the cerebrospinal nervous system, such as hemi-anesthesia, hemiparesis, and hemi-ataxia are present. Extra-cranial lesions in the region of the jugular foramen are accessible and may be removed.

K. L. VERN, M.D.

Ney, K. W.: Facial Paralysis and the Surgical Repair of the Facial Nerve. *Laryngoscope*, 1922, XXXII, 327.

Tumors involving the facial nerve are usually located at some point in its course through the facial canal. Surgical lesions of the seventh nerve within the cranial cavity are principally pontile angle tumors. Lesions of the facial nerve within the temporal bone may be due to trauma or otitic disease, but often are of unknown origin. Injury of the nerve during the radical mastoid operation seldom occurs when the surgeon is experienced, but may result when the posterior part of the tympanic cavity is curetted.

The nerve is involved in only a small percentage of middle-ear infections. Facial paralysis is fairly common in tuberculous lesions of the ear.

While an intact nerve trunk is resistant to surrounding suppurative processes, it is very susceptible to compression, and the unyielding character of its bony encasement in the facial canal makes it liable to compression by inflammation and congestive processes. Depending on the degree of compression there will be varying grades of paralysis.

Lesions of the facial nerve distal to the stylomastoid foramen may be due to trauma, infection, or malignant disease of the parotid gland. Injuries of the terminal branches of the nerve are very difficult to repair and usually require muscle and fascia transplantation. Most of the lesions are due to compression and even when the nerve is divided the ends are held in fairly close approximation so that the regeneration of fibers into the distal segment is favored. The determination of regeneration will depend on the time and the type of the reaction to electrical stimulation.

An early sign of regeneration is a return of muscle tone but this should not be confused with a degenerative fibrous transformation which the muscles may undergo preceding contracture. In the latter instance there is an absence of electrical and mechanical irritability. The persistence of faradic irritability is a favorable prognostic sign; recovery may be expected within two or three months. When paralysis continues for three months, the prognosis is less favorable. When the nerve has been completely severed within the facial canal the regenerating axones should reach the facial muscles about the fifth month. Muscle tone will then be regained, and during the sixth month there should be evidence of returning voluntary power. When the paralysis shows no improvement after six months the prognosis is poor, and if it continues for nine months the possibility of regeneration is very slight. After one year it is practically hopeless.

The operation of nerve anastomosis using the spinal accessory or hypoglossal nerves can be done but is not satisfactory. Experiments have shown that motor fibers of a divided nerve will regenerate down the trunk of another nerve, but fail to assume the functional specialization of the different areas in the motor cortex. When the

spinal accessory nerve is used, the tone and motion of the facial muscles are restored but voluntary movements are possible only when attempts are made to elevate the shoulder.

The use of the hypoglossal nerve is open to similar objections. The most that can be said as to the final results of nerve anastomosis is that the muscle tone is restored. With this restoration, however, emotionally irrelevant and often embarrassing uncoordinated facial movements develop in the formerly expressionless facial muscles.

The only hope of restoring bilaterally coordinated emotional expression after paralysis of the facial nerve lies in the restoration of the functional integrity of that nerve. The anatomical displacement of nerve fibers by accident or design does not change their functional characteristics. Although repair of the facial nerve within the facial canal has not been generally advocated, the author has worked out an on the endartery an operative technique which makes it possible, without injury to the vestibular or auditory end organs, to expose and attack the facial nerve in the tympanic portion of its course where it passes between the bonytricle and the lateral semicircular canal. He believes that in most cases of Bell's palsy the lesion is located within the vertical segment of the canal which can be exposed without endangering the contents of the middle ear.

The facial canal may be divided into four segments: the vertical, or mastoid segment; the bend or pyramidal segment; the tympanic segment; and the labyrinthine segment. The vertical or mastoid segment extends from the bend of the canal almost vertically downward to the stylo-mastoid foramen. Intervening between this portion of the canal and the mastoid cells may be 1 to 2 mm. of solid bone or a thin shell of bone. In other cases the cells may open directly into the canal.

The bend or pyramidal segment is that portion of the canal where its direction is changing from the vertical to the horizontal. The tympanic segment extends between the pyramidal segment and the genu; its average length is about 5 mm. Midway in its course it comes into close relationship with the bonytricle and the stapes. The labyrinthine segment extends between the genu and lamina cribrosa. The average length of the facial canal in the adult is about 15 mm. and its diameter from 3 to 3½ mm.

For the direct repair of the facial nerve a combination of general and local anesthesia is used. The incision is an extension of that employed in the radical mastoid operation. The tissues are thoroughly infiltrated with 1 per cent novocaine, especially in the region of the stylo-mastoid foramen and the walls surrounding the meatus.

In the first stage of the operation the mastoid process is thoroughly exposed. The cartilaginous portion of the external auditory meatus is freed from its bony wall and the latter exposed in its superior, posterior, and inferior aspects.

In the second stage the lower and posterior portion of the tympanic plate, the mastoid cortex, mastoid cells, and entire mastoid tip are removed in the order named. The posterior meatal wall is then broken down with care not to penetrate the facial canal. The prominence of the facial canal can then be located immediately below and anterior to the prominence produced by the external semicircular canal.

In the third stage of the operation the nerve is thoroughly exposed by the removal of the canal wall which is continued through the tympanic portion. Gross lesions of the nerve will then be apparent. Compressive lesions are evident only when the nerve sheath is opened. With the aid of a cataract knife the nerve can be completely dissected from its bony canal. If the nerve is found to be divided, the ends can be sectioned and sutured. Care should be taken to prevent rotation of the nerve trunk. If the lesion is due to compression it can be relieved by opening the nerve sheath. If the nerve is divided and the defect is too large for suture, it is possible: (1) to unite the nerve ends after shortening the course of the nerve by removing some of the contiguous bony substance, or (2) to resort to grafting, using the sensory portion of the radial nerve.

After the correction of the lesion in the facial nerve compression can be prevented by turning down a flap of temporal fascia under the nerve and suturing over it a flap of the temporal muscle.

The wound is closed around several small rubber tissue drains and the meatus lightly packed with iodoform gauze.

Daily massage of the face is begun two weeks after the wound has healed. It is advisable to use an adhesive support to prevent overstretching of the facial muscles.

V. G. BURDEN, M.D.

Pancoast, H. K.: The Modern Treatment of Cancer of the Lip. *Surg., Gynec. & Obst.*, 1932, LXIV, 589.

For many years the radiologist was obliged to treat cases of cancer in the advanced stages as they were turned over to him by surgeons and other physicians. Thus he was forced into a new field of research and, as a result, this branch of medicine has advanced more rapidly during the past twenty years than any other. In the advanced and neglected cases of cancer neither surgery nor radiation is of any avail, but in the early cases a cure is possible. Even today the worst feature in the prognosis of cancer is the failure on the part of the laity and the profession to recognize the early lesions.

Radiation is used as a pre-operative or a post-operative measure, but it can not do well in a case in which surgery has failed.

The methods of dealing with cancer are preventive, surgical, and non-surgical. Preventive measures are widely applicable about the mouth. In such cases they include proper care of the teeth, restriction of the use of tobacco to prevent leucoplakia.

the treatment of syphilis, if this is a factor, and the treatment of leucoplakia, cracks, and fissures.

This article discusses surgical measures only from the standpoint of their use in conjunction with non-surgical measures. The non-surgical agents employed today are radium, the X-ray, electrothermic coagulation and the actual cautery, and are usually employed in combination. The parts to be considered are the lower lip and corners of the mouth, the tongue, primary lesions in the floor of the mouth, the tonsil, the mucous membrane lining the cheeks, the alveolar processes, the palate, and the pillars.

The radiologist treats cases in general as if they were severe because too often he has seen the results of incomplete treatment. Theoretically, cancer of the lower lip should be amenable to surgical treatment, and the poor results are due to the fact that the lesions are not recognized and treated early enough. On the basis of the treatment and prognosis the cases may be divided into three groups: primary lesions without evidence of metastasis; cases presenting small nodes in the submental or submaxillary triangle; and cases of advanced primary lesions and large nodes in these areas or other gland groups. The metastasis proceeds directly from the lower lip to the submental glands, thence directly to the submaxillary group, and may pass from one side to the other and from there to other more remote glands.

According to statistics, no recurrence develops in 90 per cent of the cases without palpable glands in the neck. In the other cases recurrences may develop at the site of the primary lesion, indicating incomplete removal, or at a gland site, indicating that metastasis had occurred at the time of operation even though no palpable glands were present. A preliminary application of radium should be given to destroy the cancer cells not reached by the knife. The author does not advocate the use of non-surgical measures alone.

If a case is referred by a surgeon, an intensive course of pre-operative treatment is given. The primary lesion and region of metastasis is treated by cross-firing with radium. The X-ray is then used on each side of the neck and radium is applied also over the mandible. This treatment causes a severe but not dangerous reaction. The author advocates waiting until the reaction has subsided before proceeding with the operative removal. If the case is not referred by a surgeon, Pancoast proceeds at once with electrothermic coagulation of the primary lesion followed by radiation. The cancer usually sloughs, and healing is complete in two weeks or a month. As a rule a plastic operation is unnecessary. Radiation is repeated once or twice at subsequent periods.

In dealing with the second group of cases, post-operative radiation is not given unless pre-operative radiation was employed. The pre-operative radiation is given as in Group 1 with destruction of the primary lesion by the electrocautery. If the metastatic glands do not subside, either radium

treatment or block dissection is necessary. If the case is referred by a surgeon, block dissection is done after the primary reaction has subsided, and postoperative radiation is given.

Implantation of emanation tubes at time of operation in any unremovable cancerous areas is advised, but necessitates extreme care in post-operative radiation. The radiation does not make surgery more difficult if the operation is delayed until the reaction has subsided.

The author believes that if the proper technique is employed, cancer of the lip can be handled satisfactorily.

In the third group of cases, those with extensive metastases, neither surgery nor radiation can effect a cure.

MARCUS HOBART, M.D.

Ivy, R. H.: Practical Method of Fixation in Fractures of the Mandible. *Surg., Gynec. & Obst.*, 1922, xxxiv, 670.

Accurate coaptation of the fragments in fracture of the mandible is of prime importance since malocclusion of the teeth seriously interferes with mastication. Hence bandaging with a Barton or other head bandage is as apt to give good functional results as the bandaging of a fractured long bone. In the majority of cases the fracture is complicated by infection entering through the broken mucous membrane of the mouth which excludes the use of wire or a metal plate. The inter-dental splint, while efficient, has the minor disadvantage that it obscures the occlusion picture of the teeth, and the great drawback that it requires considerable time to make it.

The method used by the author, which was devised by Oliver and developed by Eby, is simple and can be easily acquired by any surgeon. For routine work, 22- or 23-gauge copper wire and the large size (24- to 26-gauge) Angle's brass ligature wire are employed. The instruments needed are a pair of hemostatic forceps, a pair of short-nosed scissors, and a tenaculum or a Backhaus towel clamp. In preparing the wire to be attached to the teeth a 6-in. length is folded around the tenaculum or towel clamp and a loop is twisted in the form of an eyelet. Where there is sufficient space between the teeth, the copper wire is used as it makes a firmer attachment. When the teeth are set close together the brass wire is employed.

After the teeth to be wired are selected, both ends of the eyelet wire are inserted from the buccal surface through the interproximal space of the two lower premolars, for example, and one end is drawn through around the anterior tooth to the buccal aspect. This process is repeated on the corresponding upper teeth. The ends of the wire around the lower teeth are then twisted together with the eyelet projecting below the twist. In this way the upper and lower eyelets are prevented by the horizontal strands from coming too close to each other when subjected to the strain of the connecting wire to be described. The ends of the wire are then

cut off short and bent in to keep them from irritating the lips.

The teeth selected on the opposite side of the mouth are treated in the same manner and, if desired, a third set of teeth in the incisor region. The upper and lower eyelets are then connected by passing through them a connecting or tie wire of brass, the teeth are brought into occlusion, and the ends of each connecting or tie wire are twisted together, cut off short, and turned in.

In some cases of displacement the desired movement of a fragment to restore proper occlusion can be obtained by placing the upper eyelet in a position to the right or left of the lower eyelet instead of directly opposite. Complete reduction may not immediately follow the placing of the wires, but will generally occur when the slack of the connecting wires is taken up after twenty-four hours.

Occasionally a fracture of the body of the bone will be encountered in which molar teeth have been lost, a long posterior fragment being left without teeth. In a case of this kind the anterior end of the posterior fragment is apt to be tilted upward by the temporal, masseter, and internal pterygoid muscles and the soft tissues covering the fragment meet the occlusal surfaces of the upper molar tooth. To bring about reduction, a piece of softened dental impression compound is inserted to cover the gum over the posterior fragment, filling in the space between it and the upper molars, and allowed to harden while the mouth is open. It is then removed, trimmed as small as possible, and re-inserted. The teeth on the large mandibular fragment are then wired in occlusion with the upper teeth, the impression compound keeping the posterior fragment down in place. The compound may be left in the mouth for several days without changing. The wires should be tightened every few days.

In the past year the method described was used in twenty-eight or thirty mandibular fractures, and can be successfully employed in all cases except those in which there are no teeth in the mouth and the case can with great loss of bone substance and destruction of teeth in which cast metal upper and lower splints connected by removable lock pins should be used.

DAVID TILSON, M.D.

NECK

DeQuervain, F.: The Relationship Between the Histologic Structure and the Biological Activity of Goiter Tissue. *Surg., Gynec. & Obst.*, 1922, LVIII, 313.

The author briefly reviews the work which has been done with regard to the biological, physiological, and pathological functions of goiter tissue. He states that thyroid tumors have been proved to contain substances which correspond biologically to those in the normal gland. The experiments establishing this fact, however, have not proved that these substances are beneficial to the body,

nor have they given information as to the quantity in which they enter the circulation. Furthermore, the impossibility of identifying the substances obtained from the gland experimentally with the glandular secretion is pointed out.

In the hope of securing further information on these points, De Quervain carried out a series of experiments on rats which he describes in detail. Some of the animals were injected with blood serum taken from an arm vein and others with thyroid venous blood. Still others were fed with tissue from the struma of the same patient. The rats were then placed, with controls, under bell jars, and their reactions to different degrees of rarefied air were observed. For the tests, patients with common strumas, with Graves' strumas, and with cretin strumas were used. The following results were obtained:

1. Feeding rats with goitrous substance always caused an increased sensitiveness to the lack of oxygen. There was a difference in the strength of the effects of the goitrous substances employed, substance from exophthalmic goiter giving the strongest reaction and that from the parenchymatous enlargement of cretins the weakest.

2. Serum from thyroid veins caused less strong effects than those caused by the feeding of goitrous substances.

3. Blood from the arm veins was distinctly active in the cases of colloid goiter and parenchymatous enlargement, but was not active in cases of adenomatous goiter in cretins or non-cretins.

4. In a few cases of dwarf cretins with thyroid atrophy, blood from the arm caused a decrease in sensitiveness to the lack of oxygen.

The author gives a brief and comprehensive summary of the relationship between the histology and function of the thyroid as it is known today. In conclusion, he recommends further study of his work and states that the study of cretins as well as patients with Graves' disease and the use of the rat test would be a valuable help in the solution of clinical problems.

R. M. WATKINS, M.D.

Bérard, L.: Transitory Paralysis of the Recurrent Nerve After Goiter Operations (Le paralyse transitoire du récurrent après les opérations pour goitres). *Lyon chirurg.*, 1922, XIX, 1.

From the consideration of clinical observations which he reports Bérard concludes that the pathogenic elements of a transitory paralysis of the recurrent nerve after operation for goiter are, in the order of their frequency:

1. Dragging on the inferior vascular pedicle and on the recurrent nerve during the act of luxating the lobe of a substernal goiter out of the wound.

2. Rough separation of the nerve during ligation of the thyroid artery in the vicinity of its lobular pedicle.

3. Cicatricial retraction of the tissues at the site of the hæmostatic sutures in the vicinity of the recurrent nerve, or the blocking of one or both de-

nuded nerve trunks by the exudation of the thyroid stumps or by hæmorrhage.

Before admitting the transitory character of a postoperative paralysis of the recurrent nerve it is necessary to control each stage of the convalescence by a laryngological examination because there are a

number of paralyses due to section of the nerve which appear to become cured spontaneously but the recovery is simply a matter of adaptation through more pronounced displacement of the normal cord toward the median line.

W. A. BRENNAN.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Hedblom, C. A.: Open Pneumothorax in Its Relation to the Extirpation of Tumors of the Bony Chest Wall. *Arch. Surg.*, 1922, iv, 588.

Resection of the entire chest wall with wide opening of the pleural cavity was practiced before the nature of pneumothorax or the dangers incident to it were known. In 1899 Parham concluded that the size of the opening and the duration of the pneumothorax were the most important factors responsible for the symptoms. Hedblom has collected forty-nine cases of tumors of the bony chest wall from the records of the Mayo Clinic since 1910. This report includes fifteen of these cases and fifty-eight cases from the literature. Twenty per cent of the eighty-two cases were operated on under differential pressure anaesthesia. The openings in the chest wall varied in size, and in most of the cases the exact area could not be definitely determined.

Sixty-four patients were operated on without differential pressure. Pneumothorax was produced in forty-three cases, and in two of them was bilateral. In several cases in the Mayo Clinic series it was clearly shown that the extent of the operation plays a large part in the production of shock entirely independent of the pneumothorax.

Complications developed in 11 per cent of cases operated on with differential pressure anaesthesia and in 28 per cent of those operated on without differential pressure anaesthesia and in which pneumothorax occurred. Pleural effusion develops much more frequently in cases in which pneumothorax is produced.

It is obviously not only possible but also reasonably safe so far as the immediate danger to life is concerned to open the pleural cavity wide without differential pressure anaesthesia. The experience of many operators has shown that in the majority of cases in which a large opening of the pleura was produced with collapse of the lung, symptoms were absent or slight. Furthermore, it is always possible to convert a large opening into a small opening or to close the opening completely by drawing in the skin edges or covering the opening with a wet towel. Experience seems to show also that traction on the lung will promptly relieve alarming symptoms referable to inefficient respiration. From a technical standpoint an operation under differential pressure anaesthesia can

be performed with greater assurance, less disturbance to the patient, and greater comfort to the surgeon than an operation performed without differential pressure.

A study of the cases reviewed with regard to postoperative complications indicates that the increased occurrence of complications furnishes substantial support for the use of differential pressure anaesthesia in resection of tumors of the chest wall. It has been demonstrated clinically and experimentally that pneumothorax renders a pleural cavity less resistant to infection. Empyema was the most potent cause of death in this group of cases, and it is reasonable to believe that the presence of pneumothorax at least contributed to the development of this complication.

The strongest argument in favor of differential pressure anaesthesia seems to be the fact that the development of postoperative complications, particularly pleural effusions, is apparently lessened by its use. Possibly this advantage might be gained by some method of insuring inflation of the lung at the end of the operation.

Hedblom suggests that it might be possible to combine local anaesthesia for the first part of the operation with differential pressure anaesthesia to inflate the lung at the end of the operation before closure. A simple intrapharyngeal anaesthesia induced by the use of a gas and oxygen apparatus would achieve this result.

RALPH B. BETTMAN, M.D.

TRACHEA AND LUNGS

Bingel, A.: Transverse Tracheotomy (Tracheotomia transversa). *Med. Klin.*, 1922, xviii, 337.

A comparison of transverse tracheotomy with longitudinal tracheotomy is to the advantage of the former in every respect. The transverse skin incision gapes open when the head is inclined backward, giving better exposure so that the linea alba cannot be missed. The transverse skin wound is less apt to be contaminated by the wound secretion, and the resulting scar is hardly visible as it lies in a fold of the skin and cannot adhere to the trachea in its entire extent. The transverse incision in the trachea gapes open without the aid of an instrument; therefore there is no need for haste in the introduction of the tube. In no case has the author observed cicatricial stenoses. These were prevented chiefly by removal of the tube after twenty-four to thirty-six hours.

TROMP (Z).

Herve: The Freeing of Pleural Adhesions by the High-Frequency Current in the Course of Pneumothorax Treatment (Libération par courants des adhérences pleurales au cours du traitement par le pneumothorax). *Presse méd.*, Par., 1918, xxx, 428.

In cases of pleural adhesions developing in patients treated by artificial pneumothorax the author formerly attempted the removal of the adhesions by the use of the thermocautery introduced through the lumen of a trocar, but the difficulty of intra-pleural manipulations and the danger of hemorrhage caused him to abandon this method.

Instead of the thermocautery he now uses the high-frequency current. By this method the liberation of pleural adhesions is greatly facilitated and much more certain. The operation can be done either by introducing the electrode through a simple trocar under the control of the radioscopic screen or by the use of a special endoscope devised by the author which is inserted in one of two puncture wounds made in the thoracic wall, the electrode passed through a trocar being inserted in the other.

W. A. BRENNAN.

Barron, M.: Carcinoma of the Lung: A Study of Its Incidence, Pathology, and Relative Importance, with a Report of Thirteen Cases Studied at Necropsy. *Arch. Surg.*, 1927, lv, 624.

In 4,572 autopsies performed in the Department of Pathology of the University of Minnesota thirteen cases of primary carcinoma of the lung were found. Although it is impossible to draw definite conclusions from a small number of cases, it was interesting to note that up to 1918 the figures corresponded to those published in the literature to that date, but that since then nine cases were found, making the total incidence for the later period 0.9 per cent, about four times the average incidence reported.

The condition appears to occur about three times as frequently in males as in females. The highest incidence seems to be in the sixth decade. The chief etiological factors are perhaps inflammatory conditions, and of these tuberculosis is the most important. Barron believes that the chronic inflammatory processes following the recent influenza epidemics may account for the striking increase in the number of cases.

Generally the tumors may be classified as: (1) nodular, (2) diffuse or lobar, and (3) infiltrating. They vary greatly in size. Occasionally they are so small that symptoms are caused only by the metastases. The right lung, and especially the upper lobe, is the most common site. Histologically, lung cancers are of various types. The cylindrical-celled growths are the most common, and of these the adenocarcinomata are the most numerous.

The symptoms may be so variable as to cause great confusion in diagnosis. Cough is a frequent and early symptom, and pain is usually present. Dyspnea and cachexia are late symptoms. Fever

is not infrequent because of the inflammatory complications so often present. In many of a series of cases cited by Barron the first diagnosis was tuberculosis. Barron agrees with a large number of writers who, unlike McMahon and Carman, do not believe that the roentgenological findings are of very great value.

Regarding the treatment Barron writes: "Most of the tumors are located at the hilum of the lung, a location in close proximity to the cardiac space and also directly in the region of the pulmonary vessels. In a few cases excision of the affected tissue has been attempted, but the results are disappointing. Roentgen and radium therapy has thus far proved of little or no value. The treatment therefore resolves itself entirely into the treatment of symptoms."

RALPH B. BETTMAN, M.D.

PHARYNX AND OESOPHAGUS

Nasaroff, W. M.: External (Esophagotomy for the Removal of Foreign Bodies (Oesophagotomie externa wegen Fremdkörper). *Verhandl. d. russ. chir. Petrogr.-Ges.*, Petrograd, 1921.

The author has collected 450 cases of external esophagotomy from the literature and describes five cases of his own. The main interest of the operation lies in the indications and the post-operative treatment. The author's cases were as follows:

Case 1. The patient was a man 35 years old who suffered severe pain immediately after accidentally swallowing a piece of glass. He was operated upon the evening of the same day but the foreign body was not found. A sound was introduced into the stomach through the wound in the oesophagus. Uneventful recovery followed.

Case 2. The patient was a child 2 years old who swallowed a small gold cross. The roentgenogram showed the foreign body in the oesophagus immediately behind the manubrium sterni. External esophagotomy was done but the foreign body was not found. A sound was introduced into the stomach through the oesophageal wound. On the third day severe asphyxia necessitated a tracheotomy. The roentgenogram revealed the cross parallel with the upper wall of the pharynx, but it was hardly distinguishable as it was very thin and in the X-ray plate was indicated by only a thin, slightly visible line. It was immediately extracted and an uneventful recovery followed.

Case 3. The patient was a woman 28 years old who swallowed a dental plate with two artificial teeth. At an immediate operation the plate was easily removed. Uneventful recovery followed.

Case 4. The patient was a woman 40 years old who swallowed a dental plate with artificial teeth. She was admitted to the clinic on the fourth day. Esophagoscopy failed to reveal the foreign body because of severe oedema of the mucosa. The esophagoscopic examination was followed by improvement, but after three days the dysphagia returned.

An œsophagotomy showed the plate to be in the œsophagus, immediately above its cardiac constriction. It was removed with a forceps and a gastric sound introduced through the wound.

Case 5. The patient, a woman 62 years old, was brought to the clinic with a severe phlegmon of the neck. Her temperature was 39.3 degrees C. and her pulse 120. A few days previously she had swallowed a fish bone. At immediate operation a large amount of gas-containing pus was removed. The perforation in the œsophagus was not found. Tamponade was done and uneventful recovery followed.

The author believes that in cases of foreign body in the thoracic portion of the œsophagus œsophagoscopy may sometimes be very dangerous because perforation of the œsophagus with subsequent mediastinitis may result, especially after prolonged lodgment of the foreign body. The total mortality after external œsophagotomy is 10 or 11 per cent. Immediately after the operation the patient can be fed by mouth or through the stomach tube in the wound. The protracted retention of a sound introduced either through the mouth or the nose should be avoided as it is unnecessary and very painful.

GIRELOFF (Z).

SURGERY OF THE ABDOMEN

GASTRO-INTESTINAL TRACT

Armstrong, G. E.: Gastric Hæmorrhage. *Surg., Gynec. & Obst.*, 1922, XXXIV, 466.

The author states that in the past twelve years he has seen ten or twelve cases of massive hæmorrhage into the stomach for which there was no satisfactory explanation. The bleeding came on suddenly in an individual otherwise healthy, without any recognizable predisposing or immediate cause.

In the case of a well-nourished and active 33-year-old man, two severe hæmorrhages of a pint of bright red blood occurred in one day. There was no evidence of cirrhosis, aneurism, or leukiemia. At operation the stomach and transverse colon were found filled with clotted blood. The mucosa appeared normal and there was no oozing even when the surface was wiped. The following day another hæmorrhage proved fatal. The autopsy findings were entirely negative.

Operative treatment in the form of gastro-enterostomy or brushing over the mucosa with the actual cautery has proved a failure in the hands of the author and his colleagues. In two cases the transfusion of uncitrated whole blood was of value. The etiological factor is probably some infection as yet not understood.

H. W. FINK, M.D.

Horsley, J. S., and Vaughan, W. T.: The Surgical Treatment of Gastric and Duodenal Ulcers with Special Reference to Pyloroplasty. *J. Am. M. Ass.*, 1922, LXVIII, 1371.

Many ulcers of the duodenum, usually the more recent ones, may be cured by non-surgical measures chief of which is diet. Operation is not advised for an ulcer of a few weeks' standing unless it is complicated by some condition such as hæmorrhage or perforation. Old peptic ulcers which have become callous are not often cured by medical treatment, but their symptoms may be ameliorated and the patient's general health may be improved.

The etiology of gastric and duodenal ulcers has not been fully explained. The following conditions seem to have some relationship to their development.

1. The peculiar arrangement of the blood vessels of the pyloric portion of the stomach and the first

portion of the duodenum, which seems favorable for the development of thrombi.

2. Pressure and friction in the region of the pylorus due to the fact that the pyloric end of the stomach is composed of strong and active muscles and the caliber of the stomach tapers off to the pylorus.

3. The sudden change in reaction from acidity in the stomach to alkalinity in the duodenum.

Most of these ulcers seem to be of hæmatogenous origin.

The object of surgical treatment is to remove the pathologic condition and then to restore the physiology of the stomach as far as possible. If the ulcer is in the body of the stomach, near the lesser curvature, a V-shaped resection is indicated. If the ulcer is extensive and not malignant, a sleeve resection will probably give better end-results than the removal of a large V-shaped section. Barber and others have shown that the sleeve resection apparently interferes less with harmonious peristalsis than the removal of a large V-shaped section from the lesser border. If the ulcer is very difficult to reach the cauterization method of Balfour should be used; if this is impossible, a pyloroplasty alone may be beneficial.

The removal of an ulcer from the posterior wall is done best by means of an incision through the gastrocolic and the gastrohepatic mesentery. Ulcers of the stomach near the pylorus and ulcers in the first inch of the duodenum may be treated by excision and pyloroplasty. However, if there are multiple ulcers in the pyloric end of the stomach, or if ulcers tend to recur, pylorotomy with the Billroth method of uniting the duodenum and stomach or the Pólya-Balfour method of joining the jejunum to the stump of the stomach may give satisfactory results.

These operations, however, have a higher mortality rate than the more simple procedures. At times, ulcers have resulted in cicatricial contraction and marked stenosis, the normal gastric or duodenal wall is replaced by an extensive scar, and restoration becomes difficult or impossible.

There are three conditions in which gastro-enterostomy is preferable to pyloroplasty:

1. When there is an extensive stenosis so that most of the normal tissue near the pylorus has been destroyed. In a narrow stenosis with no adhesions a pyloroplasty may be done with good results, but in extensive stenosis pyloroplasty is not only difficult but unsatisfactory. If there is bleeding accompanied by dense stenosis, it is well to do a pyloroplasty in order to break the ring of vicatrical tissue and bring in normal duodenal and gastric wall which will drain away the venous blood. Constriction is apt to follow these extensive stenoses, and a gastro-enterostomy should be performed at the same time.

2. When there is a large ulcer in the first portion of the duodenum or in the pyloric end of the stomach associated with extensive leucocytic infiltration, and especially if there is a subacute perforation. Such infiltrated tissue does not hold sutures well, and gastro-enterostomy is here clearly indicated. If a perforation seems imminent, the gall-bladder or tag of omentum should be fastened over the site of the ulcer with cargo sutures.

3. When adhesions are very extensive, especially in cases of only slight disease of the gall-bladder, the removal of the gall-bladder is often followed by the formation of adhesions of the duodenum to the liver which provoke pain and render the eventual results unsatisfactory. If the adhesions are mostly or entirely between the duodenum and the gall-bladder, removal of the gall-bladder and pyloroplasty will usually be satisfactory. The gall-bladder should be removed as gently as possible. The stump of the cystic duct should be covered with a tag of omentum and not drained.

In gastro-enterostomy the strong peristalsis in the pyloric end of the stomach is diminished because a large portion of the food finds an easier outlet through the stoma of the gastro-enterostomy. Therefore though the adhesions here may still be present they produce no symptoms because they are not tugged at by the strong peristaltic waves. When all the food passes through the pylorus, the increased thrusting on the peripyloric adhesions by the normal peristalsis causes discomfort.

When the pylorus is open and there are no adhesions, pyloroplasty is called for. This method is used also in treating acute perforations of small ulcers and when there is but little injury to the structure of the stomach or duodenum, as in a narrow stenosis. When the diseased area of the duodenum is well localized and can be completely extirpated or corrected without serious harm to the anatomy or function of the tissues, gastro-enterostomy is useless. It is in this type of case, in which the pylorus is open, that its results are poorest.

Ulcers situated in the duodenum more than an inch from the pylorus do not admit of a pyloroplasty.

Whenever an operation for gastric ulcer is performed by a sleeve or Y-shaped resection, a pyloroplasty should be done. This is necessary in order to overcome the muscular resistance of the pylorus.

I. W. BACH, M.D.

Grégoire, R.: The Technique of Duodenojejuno-anastomosis (*Technique de la duodeno[jejuno]anastomose*). *J. de chir.*, 1922, 307, 445.

The usual indication for duodenojejunoanastomosis is obstruction of the duodenum. In the great majority of cases the obstruction is situated in the third portion, i.e., below the ampulla of Vater. The anastomosis should then be made as close to the obstruction as possible. Grégoire describes what he considers the best technique for this anastomosis.

The transverse mesocolon and the root of the mesentery form the two sides of an angle, the opening of which contains the end of the second and the beginning of the third portion of the duodenum. This is the operative field of duodenojejunoanastomosis. When this angle is a right angle, the operative field is very large, but when it is acute, the field is greatly restricted. The peritoneum here is mobile and this mobility becomes a hindrance to the performance of duodenojejunoanastomosis.

When the operative angle is large, latero-lateral duodenojejunoanastomosis is indicated because the mesocolic surface of the duodenum is large. The first jejunal loop is selected. The loop should not be turned to make the peristalsis of the two loops occur in the same direction. During the suturing the duodenum is occluded by the fingers of the assistant who compresses its second portion against the left flank or the lumbar spine.

The technique of latero-lateral duodenojejunoanastomosis is exactly the same as that of any other latero-lateral anastomosis, but there are two points which merit special attention, viz., the danger of injuring the superior mesenteric vein, and the difficulty caused by the mobility of the peritoneum in front of the duodenum. In placing the sero-serous buried sutures, care should be taken not to insert the needle too deeply so as to penetrate the musculature of the duodenum.

When the operative angle is acute, latero-lateral anastomosis is almost impossible. This fact led Grégoire to try the Y-anastomosis on the cadaver. Duval has had the opportunity since to use it in a clinical case. However narrow the operative angle or short the accessible portion of the duodenum, it will always be possible to make the terminal discharge of the jejunum at the lowest point. The risks of the Y-anastomosis are not much greater than those of lateral anastomosis, but the operation takes longer. A duodenojejunoanastomosis so executed when the latero-lateral is impossible assures perfect drainage at the lowest point and avoids all danger of vicious circle.

W. A. BRENNAN.

Harper, W. F.: Acute Intussusception. *Boston M. & S. J.*, 1922, 33:447, 706.

In a review of the history of intussusception Harper states that although opening of the abdomen for this condition was proposed by Praxagoras, there was no report of a successful operation until 1807.

An intussusception may begin in any part of the bowel from the duodenum to the rectum, but in about 88 per cent of the cases the point of origin is in the region of the ileocecal valve.

The pathologic changes in acute intussusception are caused by compression of the vessels of the mesentery.

In the order of their development, the symptoms are as follows: (1) attacks of pain associated with pallor, cold sweat, and reflex nausea; (2) clear mucus, blood-stained mucus, and blood in the movements; (3) obstructive vomiting; and (4) toxæmia due to obstruction.

Operation is the only treatment. Resection should be done only when there is gangrene. The cases in which acute intussusception develops are those of patients who are very young and not able to withstand extensive intra-abdominal manipulation.

H. A. MCKNIGHT, M.D.

Willis, A. M.: An Unusual Case of Intestinal Obstruction. *Arch. Surg.*, 1922, iv, 690.

This interesting case is reported by the author because it presented a condition which he had never seen previously and of which he was unable to find a report in the literature.

The history very obviously suggested a diagnosis of recurrent attacks of intestinal obstruction. Operation revealed a sac formed from a membrane which appeared to cover the entire small intestine. It was apparent that the cause of the recurrent attacks was a displacement of the mass of the intestine contained in the sac. When this mass was fitted down into the pelvis it caused no symptoms, but when it was displaced upward angulation of the intestine and obstruction resulted. Histologic examination of a portion of the membrane showed it to be made up of fibrous tissue. The pathologist suggested that it was a remnant of a persistent ventral mesentery which was drawn over the gut when the latter was rotated.

EMIL C. ROBITSHEK, M.D.

Andresen, A. F. R.: Acute Intestinal Obstruction. *N. York M. J.*, 1922, cxv, 653.

The hospital mortality of acute intestinal obstruction has not been decreased despite the great progress in medicine and surgery in the last twenty years. The operative mortality is comparatively low when operation is performed soon after the onset of the symptoms, and increases rapidly as the operation is delayed. It ranges from 11 per cent in cases operated upon within the first twenty-four hours to 60 per cent in those in which operation is performed after seventy-two hours.

The cases fall into two groups: (1) those developing after a period of abdominal or digestive symptoms, and (2) those in which the acute obstructive symptoms come on suddenly, as in cases of volvulus, intussusception, etc. The pathology in all types is essentially the same, viz., occlusion of the lumen of the intestine with, in some cases, strangulation

as a cause or an effect. Strangulation may lead to gangrene, perforation, or peritonitis. It doubles the mortality, not only because of its complications, but because of the resection of gut necessary when gangrene results.

The cause of the toxæmia has not been satisfactorily explained. The mere arrest of the onward passage of the intestinal contents is not the essential cause. From a number of experiments Dragstedt concludes that the substances responsible are produced by the action of intestinal bacteria on proteins or their end-products, and that injury to the intestinal mucosa, especially injury resulting from disturbance of the blood supply of the intestine, greatly facilitates the absorption of these substances.

The symptoms almost invariably present from the beginning are vomiting, constipation, and abdominal pain. They may begin without warning or after a long train of other symptoms. The vomiting, which is of the reflex type, is due to pylorospasm, is not relieved by lavage, and may occur immediately after the ingestion of food or drink. Later, when the pylorus fails, reverse peristalsis occurs and the vomitus becomes first bile-stained and then fecal. The constipation is usually not evident, the patient occasionally having had a good stool the day before. Enemata may have a slight fecal return, depending on the site of the obstruction.

Abdominal pain is usually a prominent symptom. Ordinarily it is cramp-like and generalized and its more severe paroxysms are accompanied by vomiting without relief. It is aggravated by food and cathartics and not relieved by enemata. It is worse in the beginning, becomes less severe gradually, and is succeeded by the pain of distension or the intense constricting pain of strangulation.

The findings are usually indefinite and not of much value. Visible peristalsis is unusual, as are other signs such as a palpable mass and a rapid pulse. Tympany, shock, collapse, and Hippocratic facies are usually noted late. The laboratory findings are of little value except that occasionally an X-ray examination without barium or with a barium enema will show the obstruction.

The principal conditions from which acute intestinal obstruction must be differentiated are acute peritonitis, gall-bladder colic, renal colic, acute poisoning from food or other agents, pyloric stenosis, acute hæmorrhagic pancreatitis, uræmia, lead colic, angina abdominis, gastric crises, gastro-intestinal purpura, and angioneurotic oedema.

The treatment is early operation. In this way alone can the mortality be reduced. In Andresen's opinion even an occasional unnecessary operation is justified. The author states that the medical and surgical textbooks which pay too little attention to the early symptoms and emphasize only the late symptoms should be corrected. A presumptive diagnosis should be made from the peristaltic pain, persistent vomiting, and obstipation.

O. S. PROCTOR, M.D.

Woringer, P.: Two Cases of Congenital Megacolon (Deux cas de mégacolon congénital). *Arch. franc.-belges de chir.*, 1913, xxx, 303.

In the first case reported, that of a child 3½ months old, there was marked dilatation of the abdomen associated with vomiting and extreme constipation. The skin resembled parchment. Complete absence of adipose tissue was associated with atrophy of the muscles. Bismuth examination confirmed the diagnosis of megacolon.

The second case was that of a child 1½ years of age. Constipation had been present but had been relieved by a fruit diet. Four weeks prior to the patient's admission to the hospital the constipation had increased and had alternated with diarrhea. Blood and mucus were never present in the stools. The patient's general state of nutrition was good. Constant vomiting and diarrhea ensued and the child died from general intoxication. Autopsy revealed pronounced dilatation and hypertrophy of the colon and rectum. LOYAL E. DAVIS, M.D.

Fowler, W. F., Davidson, S. C., and Mellon, R. R.: Congenital Megacolon in the Adult. *Surg., Gynec. & Obst.*, 1913, xxviii, 661.

The authors report a case in which operation disclosed an enormously dilated and hypertrophied ascending colon, sigmoid colon, and rectum. The excised bowel weighed 1,000 gm. and measured 47.5 cm. in circumference and 60 cm. in length. Its capacity was 1,850 c.cm.

A review of the literature is presented and the condition is discussed from the standpoint of its etiology, pathology, symptoms, and treatment. There is scant clinical verification of the theory that megacolon is a congenital pathological entity. In the new born a normal tendency toward sigmoid redundancy has been noted. In megacolon the sigmoid is always involved, and redundancy has been observed with striking frequency. The anatomical arrangement—fixed rectum and mobile sigmoid—favors functional obstruction at the rectosigmoid junction, and kinks and valve formations have been clinically demonstrated at this point. When such obstructions are not demonstrable, we may assume that they were present previously, since the dilatation and the hypertrophy encountered in the so-called idiopathic megacolon cannot be differentiated from that which follows organic obstruction.

The following conclusions are drawn:

1. The so-called idiopathic megacolon is relatively infrequent in childhood and rare in the adult.
2. The only congenital feature of megacolon is the redundant sigmoid.
3. The unobstructed redundant sigmoid may be nearly or quite symptomless.
4. The degree of the obstruction, whatever its cause, determines the subsequent course.
5. Relatively slight obstruction (the "angulation" of Dehars) produces a definite syndrome without dilatation or hypertrophy.

6. Acute obstruction (usually volvulus), either primary or superimposed upon hypertrophy, induces sudden dilatation and the desperate picture common to such obstructions.

7. Chronic obstruction causes gradual dilatation and compensatory hypertrophy, the type described by Hirschsprung.

8. Kinking or valve-like action at the rectosigmoid junction is the usual cause of obstruction. When the rectum is involved also, anal spasm is a probable factor.

9. The surgical treatment of megacolon aims at the removal of the crippled bowel and restoration of the intestinal continuity. K. L. VERN, M.D.

Sencert, L., and Simon, R.: Two Cases of Megacolon Cured by Colectomy (Deux cas de mégacolon guéri par colectomie). *Arch. franc.-belges de chir.*, 1922, xxx, 491.

The authors report two cases of megacolon in which they performed a colectomy. One patient died several months later from cerebral hemorrhage; the other recovered and subsequently was delivered of a living child.

In discussing the pathology of megacolon they classify the cases into three groups. To the first belong the cases of dilatation of the intestine of congenital origin described by Hirschsprung. The second group includes cases of dilatation of the colon similar to that described by Hirschsprung but due to definite extra- or intra-intestinal mechanical factors. To this group belong two cases reported in this article. The third group consists of cases of idiopathic megacolon which differ from the congenital type described by Hirschsprung and from those secondary to obstructive lesions.

Cecostomy is accepted by the majority of surgeons as the course to pursue during the period of acute obstruction. Following this preliminary operation, partial or total colectomy, depending upon the extent of the dilatation, is the operation of choice. The mortality is comparatively low and the functional results are very good.

LOYAL E. DAVIS, M.D.

Bubia, J. L., and Swanbeck, C. E.: Gas Cysts of the Intestines. *Ann. Surg.*, 1922, lxxv, 600.

Swanbeck reports a case of gas cysts of the intestines and reviews the etiology, pathology, and symptoms of this rare disease. The theories advanced as to the etiology have been numerous but the mechanism of its production is still unknown.

In the case reported the symptoms were weakness, general malaise, pain in the right side of the abdomen radiating to the right testicle, epigastric distress, slight diarrhea, and a rapid loss of weight.

The physical examination was negative except for the presence of a tender, sausage-shaped, boggy tumor mass 10 cm. long and about 7.5 cm. wide in the right lower quadrant of the abdomen. This growth was very freely movable, especially upward

toward the costal border. Deep pressure upon it suggested a faecal impaction. No X ray examination was made.

When the abdomen was opened the tumor was found to consist of a thickened, indurated, spastic, contracted cæcum and ascending colon. The appendix seemed thickened and the outer gut from the ileocaecal valve to the hepatic flexure was congested but free from adhesions. The most peculiar findings were the doughy, crepitant feel of the mass and the presence of minute, raised, pearl-like gas cysts under the serosa, some of which were discrete and others confluent.

Operation consisted of the removal of the appendix, cæcum, and ascending colon with the cautery, and anastomosis of the ileum to the transverse colon by a lateral enterocolostomy.

The specimen consisted of the ascending colon with the appendix still attached. The mass was boggy and crepitant on palpation. On section the walls of the gut were found to be much thickened and filled with small, air-containing cysts which extended into all of the coats of the intestines, especially the mucosa and submucosa. Pressure on the cæcum caused air bubbles to appear there. The serosa was intact and shiny, and presented numerous air vesicles. The portal through which the gas entered the layers of the cæcum and the ascending colon was undoubtedly an ulcer at the base of the appendix.

The treatment of gas cysts of the intestine consists in the removal of the cause if possible. While in some cases simple exploratory laparotomy has resulted in cure, resection or short-circuiting of the involved area with the removal of the primary focus seems to give the best results.

H. A. MCKNIGHT, M.D.

Lecène, P.: The Posterior Subiliac Incision in Certain Types of Appendicitis (L'incision postérieure sous-iliaque dans certaines formes d'appendicite). *J. de chir.*, 1922, xix, 459.

The posterior forms of appendicitis are far from rare since 30 per cent of infant and adult appendices are retrocaecal or lateral to the ascending colon. These cases are somewhat difficult to diagnose as there is very little peritoneal reaction, almost no vomiting, and no severe abdominal pain. The symptoms are chills, fever, and the so-called posterior pain in the iliolumbar region. The muscular spasm and cutaneous hyperæsthesia are often absent in front and to be sought for behind. Psoitis with flexion and abduction of the thigh is an important sign but seldom present.

While lying on his right side the patient is examined for muscular stiffness between the iliac crest and the insertion of the oblique muscles. Cellular oedema is an important sign, but deep fluctuation is rare as the quantity of pus is usually small.

The treatment of choice is incision and drainage of the infected area with appendectomy if possible.

It is dangerous to delay incision since septic pyæmia may result even if the danger of general peritonitis is slight.

A case of retrocaecal suppuration was diagnosed by Lannelongue in 1881 and a posterior incision considered but not made by the attending surgeons. Nancrède and Kelly have long followed this procedure but there are still surgeons who approach such suppurations from in front through the peritoneum, a procedure which may cause peritoneal infection. Lecène makes an incision similar to that of Edebohls and Grinda, 8 to 10 cm. long and about 2 cm. above the anterior-superior spine, splitting the muscles in the direction of their fibers. The retroperitoneal fat is usually oedematous. It is necessary to retract widely in order to expose the external peritoneal cul-de-sac formed by the transversalis fascia and the peritoneum which, in cases of abscess, drains pus when incised. It is usually easy to find the appendix within the abscess, and if not, it should be sought and removed after removal of the posterior parietal peritoneum from the cæcum. Lecène removes the appendix to avoid serious complications and leaves the wound entirely open for drainage except at the ends. In cases in which the appendix is removed before suppuration has occurred the wound is closed without drainage. The use of this posterior sub-iliac incision close to the crest obviates the development of a hernia if the muscles are separated, affords efficient drainage, and prevents infection of the peritoneal cavity.

H. F. DUNN, M.D.

Hofmann, A. H.: The Surgery of Cæcal Tumors (Zur Operation des Coecaltumors). *Arch. f. klin. Chir.*, 1922, cxix, 214.

The disease most frequently involving the ileocaecal portion of the intestine is tuberculosis, and the next most frequent is carcinoma. Sarcoma and actinomycosis are rarer. Invagination of the ileum into the cæcum, perityphlitis, and burrowing abscess must be taken into consideration in the differential diagnosis. Tuberculosis usually appears in the second or third decade, while carcinoma occurs most frequently in the fourth decade. In the literature there are reports of cases in which both carcinoma and tuberculosis of the cæcum were found together.

The diagnosis of cæcal tumor is often difficult as the thickness of the abdominal wall renders it impossible to palpate even large growths, especially when they are covered by inflated intestines. Clinically carcinoma will be noticed early as it generally develops in the form of a ring causing obstruction. In tuberculosis, ileus is more rare as the caseous infiltration more readily disintegrates.

In the X-ray diagnosis a single exposure tells nothing for it shows only the amount of contents present at that moment. Fluoroscopic observation of the entrance of the contrast material is absolutely essential. As the contrast material passes through stenosed and ulcerated areas it collects in front of

and behind the diseased parts. Portions of intestine with ulcerative changes are characterized by blurring out of the haustral shadows and by mottled, streaked marking.

Surgical treatment of pathologic conditions near the ileocecal valve consists of resection of the diseased portion. The Mikulicz two-stage operation is now seldom performed as the mobilization and bringing forward of the ileocecum is severe on the patient and consumes a great deal of time. The usual procedure today is the one-stage colonic resection. Schindler's method consists in dividing the ileum, implanting it into the transverse colon, and then removing the tumor. By another procedure the tumor is removed first and the ileum is then joined end-to-end to the ascending colon. In this operation the greatest difficulty is presented by the posterior wall of the ascending colon which is denuded of peritoneum. Hence many surgeons advocate the removal of the entire ascending colon as it is much easier to effect the anastomosis with the more mobile transverse colon. GANGL (Z).

Neumann, H.: A Case of Hemorrhagic Cyst of the Transverse Mesocolon and a Consideration of the Differential Diagnosis and Treatment of Mesenteric Cysts (*Über einen Fall von Blutzyste des Mesocolon transversum unter gleichzeitiger Berussichtigung der Differentialdiagnose und Therapie der Mesenterialzysten*). *Arch. f. klin. Chir.*, 1921, cviii, 819.

A woman, 45 years of age, suffered with attacks of pain in the upper abdominal region which recurred every quarter or half year for fifteen years. After carrying a heavy basket, she experienced a sudden abdominal pain followed by rapid swelling of the abdomen.

Examination revealed in the left flank a tumor the size of two fists which was hard, nodular, and easily movable, disappeared when the patient sat up, and was not affected by the respiratory movements. On distension of the gut the growth remained unchanged. The genital organs, kidneys, and gastro-intestinal tract were negative. A diagnosis of mesenteric cyst was made. Operation revealed a cystic tumor lying between the lamellae of the transverse mesocolon which could be easily shelled out. The postoperative course was uncomplicated, and recovery followed.

On the inner side of the cyst wall, which was 0.25 to 6.0 mm. thick, there were occaftrial trabecular processes to which numerous blood coagula were adherent. Histologic examination showed abundant fibrous connective tissue, smooth musculature, and a few elastic fibers. There was round-cell infiltration toward the lumen, that is, around the blood vessels. Some of the tissue spaces had an endothelial lining (lymph vessels).

The oldest classifications of cysts were made on the basis of their contents. Even today we frequently speak of blood, chyle, lymph, serous, echinococcal, and dermoid cysts. Dowd proposed the following classification: (1) embryonically dis-

posed cysts, whose origin is the epithelium, even though it is not always demonstrable later (chyle, serous, blood, and lymph cysts); (2) echinococcal cysts; (3) cysts due to degeneration of malignant neoplasms. Noss and Sackendorf have correctly designated this classification as somewhat one-sided. Noss includes among the embryonically disposed mesenteric cysts: (1) cysts of intestinal origin—those springing from Meckel's diverticulum from the omphalo-mesenteric duct, or from the embryonic intestinal wall; (2) dermoid cysts; and (3) cysts which have their origin in retroperitoneal tissue (germinal epithelium, ovary, wolffian bodies, and muellerian ducts). Dowd's theory that in most cases cysts originate in the epithelium is incorrect as the newer pathologico-anatomic investigations show that they arise from the lymphatic system. Whether they are due to intacts of the lymph glands, lymph stasis, obliterative processes, chronic lymphangitis, or active proliferation in the sense of a lymphangioma is still undetermined.

Because of the situation of mesenteric cysts and their relation to neighboring vital organs their symptoms are exceedingly variable. As a rule the pain, which in many cases increases gradually and in others begins suddenly and severely, is the main symptom. The paroxysmal pain often gives rise to diagnostic errors (cardialgia, intestinal obstruction, etc.); apparently it is due to traction on the mesenteric root or the twisting of a pedicle. Obstinate obstipation, anorexia (loss of strength), dysmenorrhea, respiratory disturbances, and cardiac disorders are frequent. The urinary system rarely gives rise to symptoms (mechanical pressure of large cysts). It is also a fact that even enormous cysts may produce no symptoms at all.

The majority of the cysts are situated in the mesentery of the small intestine. The most important objective symptoms are extreme mobility, absence of movement or only slight movement on respiration, and a clear percussion zone between the symphysis and the tumor. Very frequently hydronephrosis and mesenteric cysts are mistaken for each other (size, subjective symptoms, "renal ballotement"). Hydronephrosis, however, is always lateral and under the ribs; moreover, the history and the findings of ureteral catheterization offer quite sufficient information for its recognition. The lipomata, which often reach a very large size (30 to 40 lbs.) and originate from the fatty capsule of the kidney and cystically degenerated retroperitoneal lymph glands, may sometimes cause insurmountable diagnostic difficulties, but usually all retroperitoneal tumors (also collections of tuberculous lymph nodes, sarcomata, etc.) are only slightly or not at all movable. Because of their position and subjective symptoms, pancreatic cysts and mesenteric cysts sometimes resemble each other closely. The former can be excluded when no metabolic anomalies (diabetes, fatty stools, azotorrhea, creatorrhea) are demonstrable.

It is extremely difficult to make a differential diagnosis between cystic peritoneal tumors and mesenteric cysts. In most of the cases, however, it is a question of a differential diagnosis between mesenteric cysts and ovarian or parovarian cystomata. Ovarian cystomata frequently cause urinary and menstrual disturbances and their growth is in the opposite direction. The absence in percussion of a sonorous zone between an adnexal cyst and the symphysis is of greater significance.

The symptomatology of mesenteric cysts has shown that such cysts are more or less dangerous to life and therefore surgery is necessary. The following methods of treatment come into consideration: (1) puncture, which should be done only under exceptional circumstances; (2) marsupialization, and (3) extirpation. Extirpation is undoubtedly the most ideal and, if the surgeon is able to avoid injuring the mesenteric vessels (intestinal gangrene), it is also the least dangerous procedure. Marsupialization, which is regarded by many as a safe procedure, has been followed by death due to kinking of the intestine adherent to the cyst sac or the placing of the suture too close to the mesenteric attachment. Peritonitis also may develop if sufficient time is not allowed for the occurrence of agglutination with the parietal peritoneum. It must not be forgotten that the granulation of the large pocket may take an exceedingly long time and that there is considerable danger of a cicatricial hernia after healing. SAXINGER (Z).

Mandl, F.: Cancer of the Rectum: Views on Etiology, Symptomatology, and Treatment Based on the Material of the Hochenegg Clinic (Ueber den Mastdarmkrebs: Aetiologische Betrachtungen, Symptomatologie, und Therapie an Hand des Materials der Klinik Hochenegg). *Deutsche Zeitschr. f. Chir.*, 1922, cxviii, 145.

The Hochenegg Clinic reports through Mandl 779 cases of cancer of the rectum, 460 of which were operated on by the sacral route. No increase in the number of cases of cancer occurred during or following the war. Five hundred and twenty-seven of the patients were men and 252 were women (67.6 and 32.4 per cent respectively). In both sexes the greatest number of cases occurred in the fifth decade of life. The youngest patient was a girl of 12 years, the oldest a man of 81 years who died three years after a colostomy.

Reference is made to Virchow's theory that irritation may be a factor responsible for carcinoma of the large intestine. The fact that the ingesta remain in the large intestine for twelve hours as compared with three hours in the small intestine increases colonic susceptibility to cancer through pathologic changes in the mucosa, particularly at the flexures and the ampulla of the rectum. In none of the Hochenegg cases could it be shown that carcinoma had developed in a hæmorrhoidal nodule. Rectal or intestinal polyposis was present in almost 12 per cent of the cases, prolapse of the

anus in 7, proctitis in 3, anal fistula in 3, and dysentery in 7. Direct trauma as a cause was doubtful. On the other hand, the influence of pregnancy on carcinoma of the rectum is emphasized and has been found to have a serologic basis. Thirteen new cases are added to those already published. Hereditary predisposition is admitted, as is also the *cancer à deux* which develops in two persons not blood relations who live in close intimacy.

In the symptoms there is entire absence of regularity, both in the appearance of the first symptoms and their order. The Strauss trilogy, constipation, tenesmus, and bleeding, is denied. Cases are classified into: (1) those of fulminating course, with symptoms of four weeks' duration; (2) those with a course of two to eighteen months; and (3) those with a protracted course, the symptoms being present for more than a year and a half. Colostomy was performed on thirty-four patients with ileus, with a mortality of 44 per cent; the statistics are equally poor for cases with a fulminating course with or without ileus.

The nutritional condition of the patients was relatively good in 226 cases, fair in 231 cases, and poor in 177 cases. The factor of strength alone, however, is not determinative, either for operation or for cure.

Examination was made in the knee-*elbow* position or, more recently, with the upper part of the body bent over the edge of the table, a position in which the abdominal pressure acts downward more than forward. The Hochenegg school has not been entirely satisfied with rectoscopy. Digital exploration gave a much more distinct picture in many instances. The excision of tissue for examination was seldom practised. The danger of hæmorrhage and the absence of actual tumor masses are objections to its routine employment. According to Hochenegg, every cancer of the rectum belongs to the surgeon, and he must decide whether radical operation or colostomy is indicated. Contra-indications are metastases in the internal organs or in the skeletal system, lymph-gland metastases along the spinal column, severe disease of a general character, and cachexia. In the latter, and in diabetes, each case must be treated on its own merits. There is no age limit. The fact that the carcinoma is situated high is not a contra-indication, but if it spreads in a transverse direction it soon becomes inoperable.

In eighteen of 779 cases operations for recurrence were performed. Of the remaining 761 cases, 508 (66.7 per cent) were operated on radically, 184 were treated by colostomy, and sixty-nine were not operated on. Very small carcinomata give a poor prognosis as regards permanent results, but there is no histologic variety which entirely rules out a good permanent result. The prognosis of pregnancy following a radical operation is favorable.

The author distinguishes between expectant, preliminary, and definitive colostomy. In 150 cases in which this operation was done the mortality was 10.6 per cent. If the patient lives for a very long

time after colostomy, the diagnosis of carcinoma appears questionable. In the Hochseng operation the incision is begun at the left sacro-iliac synchondrosis and continued in a curve, concave on the right, over the median line to the right lateral coccygeal ligament. Unlike the Kraske method, the ligaments are never divided, but merely notched, in order not to enlarge the fixation of the pelvis. With regard to the amount of the os sacrum that should be removed, each case is considered individually. Care is taken to protect the anterior sacral nerve roots. The coccyx is removed subperiosteally. As much of the os sacrum as is necessary is excised, up to the third posterior sacral foramen. When there is high-grade stenosis and coprostasis, and also when the general condition is poor, Hochseng performs a preliminary colostomy, but in twenty-three cases so treated the operative mortality was not greatly lowered. As a preparatory measure, when there is disturbance of cardiac function, digitalis is given, and in some cases iron and arsenic. Preparatory purging is continued from two to eight days. After making the incision, Hochseng proceeds to cut the fascia of the rectum, which latter he then mobilizes and undermines, if possible, at a point distant from the tumor. If necessary, the rectum is divided in order to facilitate the dissection of the tumor. In by far the greater number of cases Douglas's pouch is opened, the flexure mobilized, and the pouch then closed again.

Of 379 cases, a sacral radical operation was undertaken in 460. In eight cases it could not be completed. In 234 cases a sacral anus—amputation of the rectum—was formed, and in 205 cases, resection with retention of the sphincter was done. In twenty-two cases the tumor was brought in front of the sacrum. A combined operation was performed in seventeen cases and Lisfranc's operation in ten. Various methods were used in twelve. Of 461 patients operated on by the sacral route, fifty-one (11.1 per cent) died. A high position of the carcinoma does not have much influence on the mortality; neither is there much difference between the mortality of resection and that of amputation. Trophic disturbances and gangrene appeared thirteen times in circumcised areas but only once extensively, a fact demonstrating that even after the peritoneum is opened by the sacral route, it is possible to tie off and take care of the superior hemorrhoidal artery.

The statistics regarding the end-results are incomplete. Of 254 cases, it was possible to obtain a later report or to make a subsequent examination in only 161. In most of the cases subsequently examined there was found, 4 to 6 cm. above the sacral anus, an empella-like dilatation by means of which relative continence was obtained with the return of sensibility. Therefore plastic operations for the formation of an artificial sphincter were not undertaken. Hochseng recommends the use of a well-fitting pad, but patients with fair continence often prefer to wear a simple rectal binder. In resection Hochseng uses, in addition

to the circular suture, his own method of invaginating and drawing-through. This method is limited by the size of the tumor and the shortness of the flexure. Defective peritonization of the distal end of the rectum leads to dehiscence. Another cause of dehiscence lies in the contractions of the sphincter.

The fatal cases being excluded, the circular suture held primarily in 19.3 per cent of the cases. Following resection the results persisted in 33 per cent of the cases after three years. Following the radical sacral operation in 353 cases the results persisted in 33.6 per cent after three years, in 25.8 per cent after five years, and in 10 per cent after ten years. A combined operation was performed in seventeen cases, with a mortality of 52.9 per cent; in six cases it was performed by choice, in the others by necessity, a proof that in many cases of small carcinoma of the rectum or the pelvic colon the sacral method is not sufficient for the radical extirpation of the growth. This is due less to a high position of the tumor than to fixation of the organ to surrounding tissues and shortness of the mesocolon.

Among seventy-five recurrences, fifty were local. Recently bone metastases have increased in number. General anesthesia was preferred for the operations. Roentgen and radium treatment were little used because of the lack of proper facilities. A warning is given against radiotherapy before operation.

PLISS [Z].

Bower, J. O.: The Operating Cystoscope in the Application of Radium to Cancer of the Rectum Following Colostomy. *Surg., Gynec. & Obst.*, 1922, XXXIV, 540.

In three cases of cancer of the rectum Bower used to great advantage an operating cystoscope and a specially devised applicator in implanting radium in the proximal portion of the growth, an effective crossfire being obtained by inserting radium properly screened against the growth also through the anus. The technique used is as follows:

A lower left rectus or inguinal colostomy is done under local or spinal anesthesia and the bowel opened on the third or fourth day by the use of the thermocautery.

On the seventh or eighth day, the lower segment is flushed clear by means of a 25 F. catheter attached to a 1,000-c.cm. reservoir. When the fluid returns clear, the cystoscope with the irrigating tube attached is inserted into the bowel, the obturator is withdrawn, the special instrument telescope is inserted, the special instrument holding the radium needle is introduced into the cystoscope, and the radium needle with a silk cord attached is embedded in the growth. The instrument is then withdrawn and as many needles as required are introduced. The free ends of the braided silk are caught with a hemostat or fastened with adhesive tape to the abdomen. Then, by means of a rubber applicator, radium, properly screened, is inserted against the growth through the anus.

EDWARD F. HERS, M.D.

Jentzer, A.: Functional Adaptation in the Artificial Anus (De l'adaptation fonctionnelle dans les anus contra natura). *Arch. franç. de chir.*, 1922, XXX, 505.

In a case of rectal neoplasm in which the author formed an artificial anus macroscopic and microscopic examination at autopsy showed an enormous hypertrophy of the two muscular tunics of the intestine. Intestinal hypertrophy is not rare and is recognized by anatomic-pathologists as characteristic of certain conditions of the intestine, but in this case there was no intestinal obstruction and the hypertrophy did not exceed the width of a true sphincter. Jentzer regarded it as a functional adaptation controlled by an anospinal center in the cord.

The author's findings have not only a theoretical and anatomic-pathologic interest but also a practical bearing since it is possible that, by well-directed electrical treatment, rapid hypertrophy of the intestinal musculature and very perfect functional co-ordination of the abdominal muscles might be developed.

W. A. BRENNAN.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Laurentie, A.: Puerperal Cholecystitis (Les cholestites puerperales). *Rev. franç. de gynéc. et d'obst.*, 1921, XVII, 193.

Puerperal cholecystitis is due to infection present before the pregnancy or developing in the course thereof. The organism responsible is usually the colon bacillus, and more rarely the organisms which cause puerperal infection.

The development of the infectious process is favored by biliary stagnation induced during the pregnancy by a number of factors, chief of which is direct or indirect compression upon the biliary tract by the gravid uterus. The functional hyperactivity of the liver, hæmolysis of the red blood cells, and hypercholesterinæmia cause concentration of the bile and slowing of its outflow.

Acute puerperal cholecystitis may be catarrhal, purulent, or gangrenous in type. The chronic form is at times hydropic and at others atrophic or hypertrophic.

Abscess of the liver, perforation of the gall-bladder, pancreatitis, cardiac lesions, pulmonary lesions, meningitis, appendicitis, or pyelonephritis may complicate the condition.

Its onset is variable. It may begin with colicky pains in the gall-bladder and the phenomena of an intestinal or puerperal infection. During the acute phase the diagnosis is based on rigidity of the abdominal wall, the presence of a painful tumor in the region of the liver, and general symptoms which occasionally are very grave. The chronic form is characterized by frequent paroxysms of pain, gastrointestinal symptoms, and cachexia.

In certain cases a spontaneous cure results. Interruption of the pregnancy is rare. When there

is a particularly grave infection or a serious complication death may occur.

Medical treatment is the same as that of cholecystitis in the non-pregnant state. The character of the surgical treatment depends upon the stage of the pregnancy. Cholecystostomy is the operation of choice.

LOYAL E. DAVIS, M.D.

Daniel, C., and Babès, A.: The Mucous Type of Hydrops of the Gall-Bladder Due to Obstruction of the Cystic Duct (Étude du type muqueux de l'hydropisie de la vésicule biliaire par obstruction du canal cystique). *Presse méd.*, Par., 1922, XXX, 377.

A woman, aged 24, was brought to the hospital with intense pain and a tumefaction the size of a hen's egg to the right of the umbilicus. At operation the gall-bladder was found enormously distended and adherent to the omentum and liver. The cystic duct contained a calculus. A cholecystectomy was done. The gall-bladder contained a whitish fluid and 220 calculi. At the level of the fundus the mucosa was hyperæmic and showed vascular dilatation.

There are two well-defined types of hydrops of the gall-bladder due to obliteration of the cystic duct: the transudative or serous type and the secretory or mucous type. The first is characterized by a bladder with sclerous lesions and a fluid analogous to a transudate; the second, by inflammatory lesions of the mucosa of the bladder and a mucous fluid.

In the author's opinion the secretory or mucous type corresponds to recent obstruction of the cystic duct and inflammation of the mucosa of the gall-bladder, while the serous type is due to old lesions. The clinical history of cases reported as well as the nature of the lesions favors this hypothesis. The absence of bile in cases of gall-bladder hydrops is due to the resorption of the pigment and the salts by the gall-bladder mucosa, or to the precipitation of its elements in the form of calculi. These two types appear to be the extremes of the pathologic process and it is certain that between them there are numerous intermediate forms.

Histologic examination of the gall-bladder wall in the case reported showed numerous partially dilated mucous glands, desquamation of the epithelium, and marked infiltration of the wall by mono- and polynuclear elements indicating inflammation. The fluid content of the gall-bladder is the secretion of the mucosa involved by very extensive inflammatory lesions.

W. A. BRENNAN.

Hotz, G.: Surgery of the Bile Ducts (Chirurgie der Gallenwege). *Schweiz. med. Wochenschr.*, 1921, li, 1214.

Hotz reports on 1,856 operations for cholecystitis and cholelithiasis and 192 for other conditions, chiefly tumors, which were performed by forty-two Swiss surgeons during the last ten years. In about 50 per cent of the cases of inflammatory cholelithia-

as no infecting agent could be found, even when the clinical picture was that of a severe infection with high fever and slight icterus and the gall-bladder was oedematous, prominent, and cucumber-shaped. The pathologists' explanation that the infecting agent may have died is contradicted by the entire clinical picture. The dictum of Kehr that only 25 per cent of persons with gall-stones require operation may be true in practice among the rich but not in everyday surgery. The high operative mortality and the relapses after operation are raised as objections to early surgical treatment. The causes of an unsuccessful result following operation are:

1. Complications caused by the cholelithiasis itself and its inflammatory extension.

2. Disturbances of other organs (lungs, heart, peripheral vessels) which must be considered as essentially the result of degeneration in a worn-out organism. Inflammatory and degenerative changes are the more marked the more protracted the pathologic condition. Causes of relapse after operation are pericholecystitis and adhesive periductitis. Congestion of the gall-bladder and primary inflammation of the pancreas may also lead to these conditions. The frequent appearance of fatty stools at the time of the attacks of pain points to pancreatitis, a complication to which little attention has been given heretofore. After careful division of all adhesions and reposition of each part, tension from fixation is prevented by fastening the omentum high up.

3. Faulty surgical technique allowing stones to remain. From this standpoint cholecystectomy and early operation constitute the greatest advance in surgery of the biliary tract. They remove the stone before it becomes migratory or encrusted in the passages through secondary inflammation and, with the gall-bladder, remove the principal center of its development.

Gall-stone surgery has two aims: (1) to satisfy the vital indications, and (2) to remove the stone and its place of development. In severe attacks under unfavorable conditions the obstruction must be removed by the quickest means, whether the stone is in the cystic duct or in the choledochus. Cystostomy at the right spot is one of the best operations because nothing further need be done. On the other hand, there is, of course, the possibility of radically removing the stone by means of primary cholecystectomy carried out during the attack or in the interval between attacks. With regard to cholecystectomy the author states that primary division of the cystic duct is the method of choice. In this procedure no stone is missed, the liver is not disturbed by hemorrhage, the liver can be raised up to the gall-bladder and, of greatest importance, the choledochus can be probed from the stump of the cystic duct to determine its position and to discover hidden stones. If the position of the choledochus cannot be determined easily, it is better to begin at the fundus or even to open the

gall-bladder, remove the stones, and work from the lumen to the mouth of the hepaticus.

With regard to drainage of the large bile passages Hotz states that T-drainage has great disadvantages for even in the removal of the short single T-drain the choledochus is again torn open so that permanent biliary fistulae may become established and a cicatricial stenosis may develop which may be very difficult to overcome. Hotz follows palpation of the choledochus with the sound by the use of metallic bougies up to size No. 14. The tip of the bougie must pass through the papilla into the duodenal lumen. The stump of the cystic duct or the opening of the bile duct may be closed by suture. In the majority of cases it is best, for security, to insert nearby a strip of gauze and a drain.

According to the Swiss statistics the total mortality is 10.7 per cent. The Swiss figures for benign and malignant complications (including carcinoma) show 204 deaths to 2,408 operations, a mortality of 14.35 per cent. In order to obtain better results, patients with gall-stones must be operated on earlier in life while they still have good resistance, rather than later when the heart, lungs, and kidneys are no longer capable of bearing strain and the inflammatory processes in the biliary system have brought about important anatomical changes. It is during youth that the stones and the gall-bladder should be removed; in later years it is often better to aim only to save life by the simplest operation possible—cholecystotomy.

The Basle statistics show that when cholecystotomy and cholecystectomy are performed during the inflammatory stage the mortality is doubled. Nevertheless the tendency to wait for the attack to pass cannot always be approved since in severe attacks it is impossible to foretell what the outcome will be because even when the clinical signs of inflammation have disappeared there is no certainty that the virulence of the condition in the biliary system is lessened, and because many patients will no longer consent to operation when once they have begun to improve. As soon as the choledochus becomes involved, the mortality in both groups rises quickly.

The only chance for the cure of carcinomata of the gall-bladder is given when they happen to be found and removed during a cholecystectomy. This occurs in about 2 per cent of the cases. Carcinomata of the gall-bladder are hardly ever operated on primarily. The same is true of carcinoma of the hepaticus, choledochus, and pancreas. Instead of anastomosis, a bougie may be forced into the carcinoma stricture and a rubber drain inserted through the tumor from the normal hepaticus above to the normal choledochus below. This method is simpler than anastomosis and the functional result is good. From the Basle figures it appears that cancer shows a predilection for tissues prepared by chronic lithiasis. This fact should be given consideration in the demand for early radical operation for lithiasis.

HOTZ (ZL)

MISCELLANEOUS

Winslow, N.: Penetrating Abdominal Wounds.
Surg., Gynec. & Obst., 1922, XXXIV, 617.

In reporting thirty-one cases of penetrating wounds of the abdomen Winslow emphasizes the importance of a thorough abdominal exploration when there is doubt as to whether the peritoneal cavity has been entered or not. In all bullet wounds, however remote the wound of entrance, the abdominal viscera should be inspected if abdominal symptoms develop. If the intra-abdominal structures have not been injured the patient has been only temporarily inconvenienced by the operation, and if a hollow viscus has been injured it may prove a life-saving measure.

Of the thirty-one patients whose cases are reported, sixteen recovered and fifteen died. Twenty-five were males, and six were females. Twenty-three had gunshot wounds, and eight had stab wounds. Of the former, thirteen died and ten recovered, and of the latter two died and six recovered.

H. A. McKnight, M.D.

Keenan, C. B.: Traumatic Diaphragmatic Hernia.
Ann. Surg., 1922, LXXV, 625.

Two cases are reported, one treated in military practice and one in civil practice. The condition was brought quite forcibly to the attention of surgeons during the recent war as occasionally a missile traversed the left chest and upper abdomen without producing any lesion requiring surgical intervention except a wound of the diaphragm followed by diaphragmatic hernia. These cases were recognized from the position of the wound and the symptoms which were those of a left-sided pneumothorax and a localized peritonitis in the left upper quadrant of the abdomen. The majority of the cases were subjected to immediate operation, usually with excellent results, but occasionally a case escaped immediate attention, possibly because the wound of the diaphragm was small and the hernia of the stomach did not develop for some time.

The first patient whose case is reported in this article received a bullet wound of the chest in 1916 and remained free of symptoms until 1917 when he began to suffer from attacks of severe pain in the epigastrium. These attacks became more severe, and in 1919 were associated with vomiting which caused relief. Physical examination revealed the ordinary signs of a pneumothorax at the left base, and the X-ray showed that the larger part of the stomach lay above the diaphragm.

The operation was done through the chest, 6 in. of the eighth rib in the postero-lateral region being removed. The stomach was easily reduced into the abdominal cavity, and the edges of the tear in the diaphragm closed with as much overlapping as possible.

The second case reported was that of a man who had been struck on the upper part of his abdomen by a dehorned bull. He immediately suffered severe

pain in the epigastrium, nausea, and occasional vomiting, hiccough, shortness of breath, pain in the left lower chest during respiration, and shock. Physical examination showed marked rigidity in the left upper quadrant and marked immobility and tympany with a positive coin sound on percussion in the left lower chest. The diagnosis was confirmed by X-ray examination and the hernia was repaired as in the first case.

Rupture of the diaphragm on the left side by severe blows on the abdomen occurs moderately frequently. The best results are obtained by early diagnosis and immediate operation. The method of approach may be through the chest or through the abdomen. In the great majority of cases the use of the thoracic route is much easier, but Keenan advises an incision on the antero-lateral surface extending partly into the thoracic cavity and partly into the abdomen as this makes excision of a rib unnecessary, retraction alone being sufficient.

O. S. Proctor, M.D.

Le Jemtel: Strangulated Diaphragmatic Hernia of the Left Colon of Traumatic Origin (Une hernie diaphragmatique étranglée du côlon gauche d'origine traumatique). *Arch. franco-belges de chir.*, 1922, XXV, 570.

In the case reported laparotomy showed the left colon herniated and strangulated for a length of 25 to 30 cm. through an old gunshot wound of the diaphragm. The loop was reduced with difficulty even after the diaphragmatic orifice had been enlarged. The immediate postoperative results were good but abdominal pain recurred the following day and the patient died.

The author states that in diaphragmatic strangulated hernia operated upon late the question of the advisability of resecting the strangulated loop arises as in other strangulated hernia. In the case reported resection might have saved the patient's life but was not done because the color of the loop did not seem to indicate it. Although in this instance it was possible to reduce the hernia and suture the diaphragmatic orifice through a median laparotomy, the author believes an abdominal incision parallel with the costal border is better in most cases.

W. A. Brennan.

Dupont, R.: An Inflammatory Tumor of the Abdomen (Un cas de tumeur inflammatoire de l'abdomen). *J. de chir.*, 1922, XIX, 469.

Dupont reports the case of a man, 50 years of age, who, at the age of 20, received a severe injury of the abdominal wall. When the patient consulted his physician in April, 1921, he presented a hard mass deep in the iliac fossa and complained of a heavy feeling in the lower abdomen and difficulty in urination. At an examination made four weeks later the mass was found to be enlarged but was not adherent to the skin. On palpation it was slightly tender, very hard, and not easily defined. Apparently it was adherent to the abdominal wall

about the umbilicus. Twenty-four hours later symptoms of intestinal obstruction developed and persisted for two days with slight enlargement of the tumor and a temperature of 38.4 degrees C.

Dupont incised a small abscess just below the umbilicus which led into a very hard fatty tissue. This fatty tissue seemed to have replaced both the muscles and the peritoneum. Following the incision the temperature fell to normal but the patient continued to lose weight. An incision was then made at a distance from the infected area to expose the fatty mass. The latter was found to be fused to the small intestine behind and to the fundus of the bladder, which it was necessary to resect. A small abscess at the lower pole of the mass was opened. The cecum and appendix were free but resection of a large part of the ileum was indicated.

The tumor was composed largely of old fibrous tissue with numerous areas of necrosis and showed many polymorphous eosinophiles. It was evidently inflammatory but not malignant, syphilitic, or tuberculous. The exact point of its origin was not evident. The appendix was normal and the bladder apparently invaded secondarily. Remnants of the testis were found in the tumor.

Similar inflammatory tumors have been reported by Heyman, Pique, and Mariav. As Dupont did not examine the adherent intestine, he is unable to ascribe the condition to a chronic latent lesion. He does not mention a Meckel diverticulum as a factor. These tumors almost entirely lack the cardinal symptoms of inflammation, fever and pain, but the striking points are their growth and the fact that they affect the general health relatively slightly. The ideal treatment is excision in the healthy tissue and the removal of any areas of infection giving rise to a fibrous reaction. H. F. Drees, M.D.

Gibbon, J. H., and Flick, J. B.: The Present Status of Epiploexy. *Ann. Surg.*, 1922, LXIV, 440.

The surgical methods employed for the treatment of cirrhosis of the liver are directed to a part of the venous blood going to this organ, to the systemic circulation. Irritation of the upper surfaces of the liver and spleen and of the under surface of the diaphragm with gauze and the Talma-Morison-Drummond operation are the methods most commonly used. The latter, known also as "omentopexy" or "epiploexy," consists in the fixation of the omentum in the chest wall. Other surgical measures suggested for hepatic cirrhosis include ligation of the main tributaries of the portal vein, the formation of an Eck fistula, anastomosis of the superior mesenteric vein with the ovarian or spermatic and transplantation of the testicle and spermatic cord to the abdomen, and repeated aspiration. Some surgeons have resorted to subcutaneous drainage by means of silk threads and anastomosis of the saphenous vein and the peritoneum. Several French surgeons have performed cholecystostomy on the theory that the cirrhosis is due to infection through the bile ducts. Direct drainage of the liver by puncture has

not appealed to many surgeons. Splenectomy has been recommended by W. J. Mayo who has obtained good results with it, especially in cases in which the spleen was large.

Many papers have been written on epiploexy during the past twenty years. The results reported are encouraging in many cases, but in others are discouraging.

Mayo has divided cirrhosis of the liver into two types, portal cirrhosis and biliary cirrhosis. This classification depends on the etiology and location of the increase in connective tissue. Epiploexy is apparently of value in the former type but valueless in the latter.

In the surgically treated cases elaborate technique and prolonged anesthesia are avoided. The omentum is fixed to the parietal peritoneum by two rows of mattress sutures passed through the parietal peritoneum and recti muscles about 2 in. from the midline, the skin being reflected. Gas oxygen preceded by morphine injections is the most satisfactory anesthetic.

Synopses of the case histories and the results of the operation are given. There were two postoperative deaths, one from pneumonia, the other from peritonitis.

One patient died two months after operation, apparently from toxemia.

One patient died about three months(?) after the operation at another hospital; cause of death unknown.

One patient was relieved of all symptoms for three years and then died of apoplexy.

One patient was relieved of symptoms for eighteen months and able to work. He then had several profuse gastric hemorrhages. These were controlled by rest, and the patient was discharged from the hospital in good condition. There was no ascites. Death occurred four years after the operation; the cause of death is unknown.

One patient is alive and in good health eighteen months after operation; he has gained 25 lbs. and shows no evidence of a re-accumulation of fluid.

One patient is alive six months after the operation and able to do light work. There has been no re-accumulation of fluid.

One patient, a syphilitic, is alive five years after the operation but has not been relieved of his symptoms. MERLE R. HODGE, M.D.

Tédénat: Dermoid Cysts of the Mesentery (Kystes dermoïdes du mésentère). *Bull. et mem. Soc. de chir. de Par.*, 1922, XLIII, 403.

Dermoid cysts of the mesentery are rare. In 1912 Paskowski was able to collect only forty-three cases of cysts in the peritoneal folds: seven in the large omentum, one in the small omentum, three in the retroperitoneal cavity, and twelve others retroperitoneal in type, one of the mesocæcum, two of the ascending colon, five of the transverse colon, one of the descending mesocolon, and three of the mesosigmoid.

The author has operated upon three cases of enormous muco-dermoid retroperitoneal cysts which pushed the intestinal masses in front of them.

Extripation is the operation of choice. Paskowski cites thirteen collected cases so operated upon in which recovery resulted in eleven. In one case it was necessary to resect a part of the small intestine. Such a sacrifice must be made when a branch of the mesenteric artery must be ligated as such ligation is certain to be followed by intestinal necrosis. If it is possible to avoid the vascular lesion by cutting into the thickness of the cystic wall, as the author did in one of his cases, the operative procedure is simple when the cyst is pedunculated. In one of the author's cases the cyst had a long pedicle traversing the right fold of the mesentery and fixed deeply toward the spine. The intraperitoneal part of the pedicle was 14 cm. long, and the intramesenteric part directed toward the spine 5 cm. long. Most of this cylindrical pedicle, 15 mm. in diameter, was tubulated. Excision of as much of it as possible was followed by axial and deep cauterization of the stump to destroy the epithelium and prevent recurrence. Total excision would not have been without danger to the vessels and other deep organs.

W. A. BRENNAN.

Taylor, A. S.: Anomalous Abdominal Membranes.

Ann. Surg., 1922, LXXV, 513.

This is a report based on the first fifty of a series of cases operated upon since 1914. Complete summaries of the cases are appended. The membranes found are divided into three groups: (1) hepatoduodenal and hepatoduodenocolic, (2) duodenojejunal, and (3) Jackson's or pericolic membrane.

The hepatoduodenal and the hepatoduodenocolic membranes run from the cystic duct and a variable portion of the gall-bladder to the first portion of the duodenum and often extend as far as the pylorus. The colic portion of the membrane, when present, usually continues downward from the duodenum and pylorus to the beginning of the transverse colon. It consists of two layers, and is thin and transparent. These membranes show a good many variations. They interfere with the digestive function in various ways, by fixing the duodenum at a high level or by causing compression, kinking, or torsion. In many cases the stomach has become dilated as a result of the continuous partial obstruction and may add to the kinking.

The anomalous membranes about the duodenojejunal junction vary considerably. They may cause compression, sharp angulation, or other deformities, causing marked dilation of the duodenum proximal to the obstruction.

Jackson's membrane, or pericolic membrane, is a membranous formation running from the outer side of the cæcum and ascending colon up to and across these portions of the gut. In some cases it involves the cæcum and ascending colon up to and including the hepatic flexure, while in others it may be merely a narrow band at some point on the

cæcum, ascending colon, or hepatic flexure. It may be thin and loose or thick and short, and located so as to cause distortion and compression of the gut. Compression may be caused by only certain areas in the membrane, the rest of it being innocuous. Usually it can be slipped freely over the true peritoneal coat of the gut and fuses with the latter along its anterior convexity, but it may fuse with the inner mesocolon. When the bands associated with the membrane shorten, the intestine is compressed, kinked, and distorted.

The great omentum may have an anomalous origin, passing around the hepatic flexure and down in front of the ascending colon a variable distance. This fixes the ascending colon and the beginning of the transverse colon firmly together, and causes a sharp angulation at the hepatic flexure. Adhesions may complicate the picture.

These anomalous membranes interfere with peristalsis by distortion, angulation, or compression, thus causing stasis in the cæcum and part of the ascending colon with resultant fermentation of the gut contents, dilatation of the gut wall, and incompetence of the ileocecal valve. Taylor believes that many of the cases of so-called chronic appendicitis are cases of this type, a theory that would explain the failure of simple appendectomy to cure them.

There are two views as to the origin of these membranes: (1) that they are congenital and due to anomalies produced during the process of fusion of the peritoneum after the rotation of the gut; (2) that they are due to inflammatory activity in the digestive tract, either prenatal or postnatal. The evidence in the literature and in his own experience convinces the author that they are the result of anomalies in the fusion of the peritoneum, and that the thickenings sometimes found are due to chronic traction or irritation caused by toxins or low-grade infections arising within the gut. Because of a balance of the fundamental factors involved, the membranes, though congenital, may cause little or no disturbance until late in life. These factors are the resistance and distortion caused by the membranes, and the muscular and nervous energy of the digestive tube. As long as the second factor is sufficient to overcome the first, there will be few or no symptoms. If the resistance is great and the second factor remains energetic, pain will be a predominant symptom. As soon as the energy of the digestive tube is not sufficient to overcome the resistance, the clinical picture is dominated by dilatation, stasis, and distension in the right side of the abdomen, constipation, and the general symptoms usually grouped under the term "auto-intoxication."

The physical examination may show the patient to be in good color or pasty and sallow. There is frequently local tenderness over the most involved area. The one factor most necessary for a correct diagnosis is a good barium series of the gastrointestinal tract correctly interpreted. Here one may

see the apex of the duodenum held high, the pyloric end of the stomach to the right of the midline, and the pyloric antrum, pylorus, and the first part of the duodenum turned up and in, making a typical "fish-hook" type of stomach. Another feature is sharp angulation at the junction of the first and second portions of the duodenum. There may be some deformity of the duodenal cap. In a case of duodenojejunal membrane, obstruction of the duodenum can be made out, chiefly by fluoroscopy.

In cases of periducal membrane a characteristic feature is relatively high fixation of the hepatic flexure, often with sharp angulation or distortion of the caecum or ascending colon. Frequently the ileocecal valve is incompetent, and nearly always there is definite stasis in the caecum and ascending colon.

Primarily, these patients should be under the care of an internist for a long period as under such care many of them may be relieved and restored to usefulness. When the symptoms tend to become more continuous and severe in spite of good medical treatment, surgery is indicated.

Taylor uses a transverse right rectus incision, just above the umbilicus. The membranes are put on the stretch by traction on the various organs, and then cut. The raw surfaces are covered with catgut sutures. Usually the membrane is bloodless. In cases of duodenojejunal membrane, in which compression is due to the upper mesenteric vessels, a duodenojejunostomy is done, a generous anastomosis being made.

The patient's position is changed frequently, beginning immediately after the operation, and massage is begun as soon as possible and continued for from four to six weeks.

The results have been very satisfactory, the patients being relieved of pain and discomfort, gaining weight, and in almost all cases being enabled to resume their former occupations. The longer the duration of the disabling symptoms preceding operation, the slower the rate of recovery. Highly satisfactory results were obtained in 84 per cent of the cases, and a complete cure in 32 per cent.

O. S. PROCTOR, M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Haas, S. L.: Spontaneous Healing Inherent in Transplanted Bone. *J. Bone & Joint Surg.*, 1927, 9, A, 15, 289.

The author discusses the much mooted question as to whether a transplanted bone graft acts merely as a passive scaffold for the growth of bone or takes an active part in the formation of new bone. The criterion used for the osteoblastic activity of the transplant is the healing of fractured bone.

Two of several experiments on dogs are reported. To obviate any chance of other bony aid in the healing of a transplanted phalanx the latter was buried in the paraspinal muscles. In seventy-two days the excised transplant was shown macroscopically and microscopically to be united by a bridge of new bone.

Haas believes that in the osteoblastic cells of a live bone transplant placed in a muscle and removed from all osseous contact there is a sufficient store of energy to form a union between the two fragments of a fracture produced in such a transplant, and that because of this very active, independent, regenerative and reparative property innate in live bone transplants it is advisable to utilize living bone in transplantation wherever possible.

DAVID TELSON, M.D.

Speed, K.: Growth Problems Following Osteomyelitis of Adolescent Long Bones. *Surg., Gynec. & Obst.*, 1927, 44, 117, 459.

Factors influencing the growth of long bones are: (1) loss of blood supply; (2) disturbance of the endocrine system; (3) inflammation or disease of

the bone, especially the epiphysis, and (4) injury of the bone (fracture with or without injury of the epiphyseal cartilage).

As pointed out by Haas, the nearer the injury to the cartilage columns, the greater the disturbance of growth. There is a relation also between the degree of destruction of the cartilage columns and disturbances of the direct blood supply of the epiphyseal cartilage plate and growth.

Acute suppurative osteomyelitis in or adjacent to the epiphyseal area may cause thrombosis of the immediate blood vessels which later disappears. Lesser grades of infection, such as non-suppurative epiphysitis, may cause the same process. The growing cartilage cells are replaced by fibrous tissue, and bone trabeculae grow across the epiphyseal area, completely preventing bone growth. If a limb is involved in which only one bone forms the framework, loss of length may be compensated by skeletal readjustments or by added bone growth of the remaining epiphysis, but if one of two long bones fails to develop, the other continues to grow and deformities result which may cause restriction of motion of the neighboring joint.

Experiments have shown that fracture, inflammation, and operative removal of the cartilaginous plate arrest the growth of the epiphysis, but cause no disturbance if they involve the shaft of a long bone. Therefore at operation vessels leading to the epiphysis of greatest growth should be carefully preserved.

Healing of the epiphyseal cartilage plate following infection may cause a deposit of bone to pass through the interosseous ligament and result in cross union. This condition causes limitation of motion and possibly deformity of the adjacent joints.

The treatment is prophylactic and active. For the prophylactic treatment the following rules are given:

1. Early operation should be done on shaft osteomyelitis of adolescent bones before the epiphyseal areas become involved or their vessels thrombosed and obliterated.

2. Extreme conservatism is necessary in draining acute suppurative epiphysitis of adolescent long bones.

- a. Cut open the periosteum by one longitudinal incision; do not reflect it any more than necessary.

- b. Never use a sharp curette in the epiphyseal area; wipe out granulations and drain.

- c. Immobilize the limb in a suitable splint or dressing. This is best done by traction in extension to prevent a pathologic dislocation and to assure sufficient drainage.

3. Warn the child's parents of the possibility of interference with growth and examine the patient frequently with the X-ray after healing has occurred.

4. If growth seems arrested, apply a suitable splint or apparatus to prevent deformities while waiting for growth to begin.

5. Protect the skin overgrowing the ends of the normal companion bone, so that pressure sores and infection may not develop.

The rules for active treatment are:

1. Remember the law of nutrient arteries in relation to growing long bones.

2. Unless a bowing deformity in the leg or forearm tends to manifest itself rapidly, to cause great loss of function, or to threaten skin necrosis, splint correction of the extremity should be continued for at least one year.

3. If both the clinical and the X-ray examinations during the course of the year show that the growth of the bone is arrested, a shaft resection of the companion bone, remote from the epiphysis, should be performed to equalize length.

4. If it is quite positively established after two or three years that the epiphysis of the damaged bone has ceased growing and is obliterated, and if the child is young, the analogous epiphysis of the fellow bone may be excised to stop its overgrowth. Each bone will then grow at an equal rate from the remaining epiphysis and there is no danger of bowing. The length deformity, however, will persist.

RUDOLPH S. REICH, M.D.

Morton, J. J.: The Generalized Type of Osteitis Fibrosa Cystica: Von Recklinghausen's Disease. *Arch Surg*, 1922, iv, 534.

Although a considerable number of articles have been written on the localized form of osteitis fibrosa cystica, very little is found regarding the generalized type, possibly because it has not been recognized.

The generalized form has been known as von Recklinghausen's disease since 1910, when von Recklinghausen published a description of it. The first paper on the subject, however, is credited to Hirschberg in 1886. Ringel, in 1918, collected

thirty cases, and Roth in 1920 found forty. Morton reports one original case and tabulates sixty-two from the literature which he groups as follows:

Group 1. Without giant-cell sarcoma:

A. With multiple cysts, fibrosis, and malacia confined to a few bones (twenty-two cases).

B 1. With multiple cysts, fibrosis, and predominant general malacia (eight cases).

B 2. With multiple cysts, fibrosis, general malacia, and hyperostosis (seven cases).

Group 2. With giant-cell sarcoma:

A. With cysts, fibrosis, and tumors, but no marked malacia (five cases).

B 1. With cysts, fibrosis, tumors, and marked malacia (sixteen cases).

B 2. With cysts, fibrosis, malacia, and hyperostosis (five cases).

The cases of Group 1 (A), which are the most numerous, are usually those of persons under 30 years of age, and it seems evident that in many instances the first symptoms appeared before the tenth year. In one case cysts were found at the age of eighteen months. These cases are chronic, with a good prognosis as to life. Complaint is sometimes made of rheumatic pain. Fractures occur easily but heal readily. The bones of the lower extremities, the ribs, and the skull are sometimes involved. Bowing of the long bones often occurs; such deformities are amenable to surgical correction, the bone reacting in about the same way as normal bone. Microscopic examinations show fibrosis of the marrow, numerous cysts, and an occasional giant cell.

Cases in Subdivision B 1 have a general softening of all bones, a true osteomalacia. There is marked pain with increasing deformity and helplessness, the patient becoming anemic, emaciated, and bedridden. Fractures are numerous. All but one of the recorded cases were those of females. The prognosis is very poor, most cases ending in death as no treatment has any effect. The pathologic findings are marrow fibrosis, cyst formation, and calcium deficiency.

The cases of Subdivision B 2 are the same as those of Subdivision B 1 with the addition of hyperostosis which apparently is caused by bone deposits laid down simultaneously with the calcium withdrawal. The condition somewhat resembles Paget's disease.

Cases in the last two subdivisions show a sort of sinking together of the thorax causing the arms to appear too long for the body. This is due to the softening of the vertebral column. Pigeon breast, scoliosis, lordosis, and deformity of the pelvis occur and the patient may acquire an ape-like appearance.

Only a few cases fall into Group 2 (A). The symptoms are pain, swelling, deformity, and fracture. The tumors do not seem to affect the course of the disease; there is no tendency to malignancy or metastasis, and the defects following operation fill in readily. The prognosis is good.

Subdivisions B 1 and B 2 of this group correspond to the same two subdivisions of Group 1 with the addition of giant-cell tumors. The patients are anemic and emaciated and the prognosis is poor. Such cases have been described as osteomalacia with cysts and tumors.

In his earliest description von Recklinghausen regarded generalized osteitis fibrosa cystica as a chronic productive inflammation analogous to the fibrous changes in cirrhosis of the liver, but later he considered it a metaplasia of existing tissue and a withdrawal of calcium.

There is a fairly constant pathologic picture of a fibrous marrow made up of finely fibrillar, thready connective tissue extending into the cortical bone which may contain round cells and resemble granulation tissue. Osteoclasts and giant cells are found but the new formation of bone stops short of completion because of some barrier to the deposit of calcium. Masses of giant cells which are poorly vascularized rarely and soften and cause the formation of cysts with smooth walls but without true endothelial lining and containing a clear fluid which is yellow or reddish according to the amount of blood present. Pathologists are not yet in agreement regarding the giant cells. Adams considers them myeloplaxes, but in Mallory's opinion they are foreign-body giant cells. The latter view is supported by Bartle, who has produced a medullary giant-cell sarcoma experimentally by embedding a piece of sterile gauze in the bone marrow. Lubarsch claims that the giant cells in this disease are more or less full of pigment, that they are clumped together, that mitosis is lacking, and that in all these points they differ from the giant cells of epulis and sarcoma. The benign nature of these cells, however, seems firmly established by abundant pathologic and clinical evidence.

The etiology of the disease is unknown. Cultures have never been successfully obtained from the lesions. Harnann regards both this condition and Paget's disease as due to hypofunction of the hypophysis. There is, no doubt, a disturbance of calcium metabolism, and it is possible that calcium is retained in high content in the blood and excreted more rapidly than normally.

The roentgenogram shows a general translucence of the whole bone and a washed-out calcium content with a honey-comb appearance where cysts have been formed. The marrow cavity is widened and irregular, the outline being ill-defined and merging imperceptibly into that of the cortex. The epiphyses and joint surfaces are not affected but the shaft shows marked deformities and angulation where fractures have occurred. The disease can be differentiated from osteomalacia and Paget's disease by the roentgenogram. In the former the bone is uniformly rarified and scarcely more dense than the surrounding soft parts. The cystic spaces occur only rarely but clear spaces and angular deformities are produced by unhealed fractures. Paget's disease shows a rough, irregular periosteum,

a tremendously thickened cortical bone, smooth curved deformities, and a mottled, cloudy marrow space.

Local treatment seems to be the only treatment of any value. When there is marked deformity, osteotomy can be done with assurance of obtaining union. Bone grafts have been used successfully to fill in defects. Nothing is known that will check the underlying metabolic process.

The case reported by the author falls in Group 1 (A). The patient was a man of 23 years with bowing of the thigh bones. He had broken the right femur at the age of 3 and again at the age of 16. When he was 4 years old he broke his right arm just above the wrist, and at 23 years of age his left femur was broken. At various times he had had pain in the knees and thighs causing more or less disability. Examination showed marked outward bowing of both femurs, especially the right. The trochanters were thickened and high above Nélaton's line. There was no abduction in either hip, but there was flexion to a right angle. Slight secondary anemia was present. The Wassermann test was negative. Roentgenograms showed the skull dotted with clear spaces varying in size from that of a pinhead to that of a pea. In the right humerus, radius, and ulna there was thinning with cyst formation. The thumb and index finger bones of the right hand showed rarefied areas. The right femur bowed outward like a shepherd's crook and was increased in thickness throughout its entire length; the great trochanter impinged on the ilium; there was marked coxa vara and no apparent medullary space; the entire shaft was riddled with areas of honey-comb spaces and there was a partial fracture at the mid-shaft. The left femur was similar to the right. Both tibiae and fibulae showed the same lesions in milder form.

Osteotomy was done in the upper third of the right femur. The cortex was so hard that the use of a mallet was necessary to drive the chisel through. The leg was placed in a cast. Healing occurred in four weeks. A second osteotomy was done in the lower third eight months later and good alignment was obtained.

WILLIAM A. CLARK, M.D.

Gaun, P.: The Nature and Pathogenesis of Paget's Osteitis Deformans (*Zur Frage des Wesens und der Pathogenese der Osteitis deformans Paget*). *Beitr. z. Min. Chir.*, 1922, CXXV, 212.

The nature of Paget's osteitis deformans is still vague and the subject of dispute in spite of many detailed pathologico-anatomical descriptions. Some investigators have classified it among the systemic diseases, others have viewed it as the product of inflammation, while still others have attributed it to a neoplastic proliferation.

The disease picture, with its complete transformation of the external bony architecture and of the internal structure of the bone, is characterized by three processes: extensive disappearance of the calcareous bony substance, transformation of the

normal fatty bone marrow into fibrous marrow substance, and abundant periosteal and myelogenous new bone formation to replace the tissue destroyed.

The diagnosis is made certain by the X-ray picture. The changes in form and structure of the bone, the extent of the process, and the degree of deformity come out so characteristically that confusion with any other bone disease is excluded.

Few examinations of the blood picture in Paget's disease have been made as yet, and it is only recently that the subject has attracted much attention. The cases examined are not sufficient in number to give a final and complete picture of the pathological anomalies of the blood in this condition. They show that there are changes in the composition of the blood (lymphocytosis and monoleucocytosis), but it is not yet possible to deduce from them a typical finding which is characteristic and of value in the differential diagnosis.

In no case has urinalysis shown the presence of pathologic constituents, but there was frequently a marked excess of phosphates explainable by the fact that in the wasting of the bone a large quantity of the free phosphatic salts enters the blood stream and is then excreted by the kidneys.

The etiology of the disease, as well as its nature, has been but imperfectly explained. In the description of the bony transformation mention has been made frequently of important changes in a great variety of organs, chiefly the glands of internal secretion. Extensive changes in the vascular system have also been described. Changes in the joints and affections of the central nervous system and the peripheral nerves, which often appear at the same time, have been held responsible for the origin of the disease. The number of theories is large but no single factor as yet brought forward is sufficient of itself to explain the etiology convincingly. The author's own opinion is that the cause is less a neuropathic disturbance than a dysfunction of a number of glands; that the different hormones act upon the bone marrow to excite inflammation and thereby cause extensive hyperplastic proliferation with hemorrhage and consequent degenerative transformations. Trauma and other forms of injurious stimulation take second place as causative factors. Hereditary predisposition to the condition is not to be denied.

A very important complication of Paget's disease is the formation of malignant tumors, especially sarcoma and carcinoma, which take their origin in the proliferated bony tissue and tend to metastasize in the bones and internal organs. This complication is not infrequently of first consequence in the prognosis. The prognosis depends also on the location and extent of the disease process and on the age of the patient. The more advanced the age of the person affected, the more unfavorable the prognosis.

The treatment should be entirely symptomatic and directed to building up the general health.

Strong warning is to be given against surgical interference. Phosphorus and cod liver oil, potassium iodide, and calcium lactate given internally have been partially successful. X-ray treatment, either alone or in conjunction with the remedies named, has also brought about improvement. The same can be said of preparations of the thyroid, thymus, and other glands.

In his own cases the author obtained improvement by moderate doses of potassium iodide, rest in bed, and hot-air baths. It appears that the iodide exerts a stimulating influence on the formation of osteoid and ossifying supporting substances, and that, as the bones become firmer, the subjective symptoms tend to subside. Since the thyroid gland appears to bear some relationship to Paget's disease, it is possible also that a part of the therapeutic effect of the iodide, particularly the retrogressive changes in the hyperplastic tissue, is due to an increase of the thyroglobulin of the thyroid gland.

BODE (Z).

Ewing, J.: A Review and Classification of Bone Sarcoma. *Arch. Surg.*, 1922, iv, 485.

The classification proposed by Ewing is offered as a contribution to a much-needed uniform nomenclature of bone tumors. Most tumors are not simple structures composed of a single type of cell but are complex and may contain several kinds of cells. Therefore it is not reasonable to classify them as round-cell, spindle-cell, or giant-cell growths. Instead, the classification should be based on the clinical and anatomical conditions which usually determine the course of the tumor.

Classification of Bone Tumors

Osteoma: Spongy, ivory.

Chondroma: Pure chondroma, chondromyxoma, myxoma: capsular, periosteal, central.

Angioma: Cavernous.

Endothelioma: Angio-endothelioma, diffuse: solitary, multiple.

Benign central giant-cell tumor and its variants: bone cyst, giant-cell tumor, xanthosarcoma, myxosarcoma (benign).

Osteogenic sarcoma: Periosteal, extraperiosteal, solid medullary and subperiosteal, telangiectatic, sclerosing.

Myeloma: Plasma cell, lymphocytic, myelocytic, erythroblastic.

Only the cellular forms in this table are discussed in this article.

ENDOTHELIOMA

Endothelioma of bone has usually been called round-cell sarcoma or myeloma, but sufficient is now known regarding this form of tumor to establish it as a distinct type. Ten cases have been seen by the author in the past year. There are three anatomical forms: (1) multiple endothelioma; (2) solitary angio-endothelioma, (3) diffuse endothelioma.

The multiple form may involve every bone in the body. It is a disease of adults with a tendency to form metastases in the lungs and lymph nodes. Nearly all cases have been fatal. The roentgenogram shows multiple central tumors with diffuse bone absorption. The growths differ from myeloma in that they are not so numerous and do not sharply perforate the bone. The cells are of an endothelial character, arranged in small groups or sheets, and may form alveoli or cysts containing fluid.

The angio-endothelioma is a single central tumor with an expansile pulsation. The roentgenogram shows clean-cut destruction of bone. The tumor invades the soft parts through displacement instead of periosteal involvement, thereby differing from the ordinary osteogenetic sarcoma. It recurs after amputation and produces metastases. Structurally it is composed of large clear endothelial cells in cords and columns enclosing circulating blood. Most of the subjects are adults.

Solitary diffuse endothelioma involves single bones in persons under 21 years of age. Early symptoms are pain and gradually developing disability. Spontaneous fracture may occur after several months. Widening and diffuse absorption of the entire shaft occur without a trace of bone production. Unlike the giant-cell tumor and sarcoma, this growth recedes under roentgen ray or radium treatment. The cells resemble those of the round-cell sarcoma, especially after poor fixation, but careful preparation and study will reveal large, clear endothelial cells lining cavities filled with intact blood. Some cases have come to a fatal termination from pulmonary metastases. Most of the patients are of delicate build and show secondary anemia. Some of the author's cases were regarded by other observers as cases of osteomyelitis. It is highly important to avoid incision into the tumor. The limb should be immobilized and treated with heavy radium packs and the roentgen rays.

GIANT-CELL TUMOR AND ITS VARIANTS

It has long been felt that the scope of these tumors is inadequately defined. Some of them do not behave like benign neoplasms. Many of them recur after operation, and Gross believed that he had observed metastases. It is the variants of the disease that give rise to the difficulty. The ordinary giant-cell tumor probably develops from cysts due to a localized osteitis fibrosa. Hemorrhage occurs in these cysts and the resulting granulation tissue contains disintegrating bone and giant cells. The typical tumor of this type progresses slowly with pain, swelling, and disability. It occurs usually at the end of long bones, beginning near the epiphyseal line. A thin shell of bone surrounds the tumor but the periosteum is not affected. It is nearly always cystic, with a soft semifluid center and a more dense periphery. The structure shows a large number of giant cells with separate nuclei. This typical form is always strictly benign, but osteomyelitis may follow exploratory incision as the cysts are apt to be-

come infected. They may be cured by curettage, by the roentgen ray, or radium, and some of them disappear spontaneously.

Xanthosarcoma is classed as a variant of the giant-cell tumor because of its central location, clinical history, general structure, and course of growth, and because xanthoma cells are frequently found in typical giant-cell tumors. It is a solid, dry tumor with an incomplete bony capsule and a yellow color due to large polyhedral cells distended with lipid granules. It responds to roentgen-ray and radium treatment. During this treatment the limb should be immobilized. These tumors are prone to recur after curettage, but the danger of metastasis may be disregarded.

Myxosarcoma is characterized by solid, elastic opaque tissue with a small central area of soft vascular tissue containing giant cells. It differs in structure from the myxomatous areas of osteogenetic sarcoma. There are many spindle cells which might lead to a diagnosis of malignancy but these cells lack the hyperchromatism of malignant tumors. Gross transitional forms between this type and the ordinary giant-cell tumor as well as the occurrence of typical giant cells in the myxosarcoma justify its inclusion in the group of giant-cell tumors.

GIANT-CELL TUMORS OF CARTILAGINOUS ORIGIN

Masses of cartilage of variable size are sometimes found in tumors of this group, a fact from which it is concluded that the tumor is associated with misplaced particles of cartilage. The texture is solid, opaque, sometimes mucinous. Giant cells and round cells are numerous, but spindle cells are not found. From its cellular character, the growth might be regarded as a malignant tumor, but several cases are known to have become cured following curettage.

The telangiectatic giant-cell tumor is characterized by wide blood spaces and thin strands of spindle-cell tissue lined by giant cells. Although this tumor contains giant cells, clinical experience puts it in the class of malignant bone aneurisms. In doubtful cases more attention should be paid the main tumor tissue than the giant cells.

As there are some borderline cases and some cases in which secondary giant-cell structure is found in osteogenetic sarcoma, it is regarded as hazardous to depend upon a pathological diagnosis based on a small portion of a tumor removed for examination.

OSTEOGENETIC SARCOMA

Osteogenetic sarcoma is the principal malignant tumor of bone. There are four distinct types:

1. Periosteal sarcoma. In its true form this appears to arise from the periosteum itself or the outer layers. The roentgen ray shows an intact or only slightly eroded shaft running through the tumor mass which lies at one side. Some of these tumors arise from the joint capsule. They are frequently encapsulated, growing to enormous size and pushing the soft parts before them. The texture

varies: some may be soft, cellular, and crumbly, while others may contain cartilage which lies in strands and provides a firm framework. Microscopically they show spindle cells with hyperchromatic nuclei. Metastases are the rule, although it would appear that some of the encapsulated forms could be easily excised. Hyperplastic callus and productive periostitis are often mistaken for sarcoma. To avoid this error the microscopist must base his diagnosis of malignancy on unmistakably neoplastic characters and must bear in mind that osteogenetic tumors rarely develop within three weeks after an injury.

2. Solid subperiosteal and medullary sarcoma. This is the most common form of osteogenetic sarcoma. It involves the marrow, shaft, and subperiosteal tissue. It destroys the shaft and may cross the epiphyseal line. The periosteum for a time acts as a capsule, but eventually yields, when the tumor spreads into the soft tissues. The growth is solid and usually contains considerable stroma of osteoid character, but true bone formation is not prominent. Hemorrhage and necrosis occur in tumors of rapid course. Spindle, round, polyhedral, and mononuclear giant cells on a stroma of cartilaginous and osteoid tissue may make up the bulk of the tumor. The roentgenogram shows a fusiform subperiosteal growth without a bony capsule and an opaque medullary region. The cortex is obscured or destroyed.

3. Telangiectatic sarcoma. This tumor destroys the shaft and grows in all directions, breaking through the periosteum. In some cases it is made up chiefly of blood spaces on a stroma of malignant tumor tissue. It is the true malignant bone aneurism, occurs only in young persons, and is rapidly fatal. No cures are on record.

4. Sclerosing osteogenetic sarcoma (so called by Virchow). This tumor converts the end of the shaft into a solid bony growth of ivory-like density. The periosteum is usually intact, but if broken, the part of the tumor that grows through is more cellular. The growth consists of hyaline osteoid tissue or dense bone. Although the disease is slow in progress, it is usually fatal and metastases occur early.

MYELOMA

Myeloma is the only true round-cell tumor occurring in bone. It arises in the marrow and any one of the cell types found normally in the marrow may predominate. There are four varieties: (1) the plasma-cell myeloma, (2) the diffuse lymphocytoma, (3) the myelocytoma, and (4) the erythroblastoma. The plasma-cell myeloma is usually a multiple, painful, perforating tumor causing general cachexia and proteinuria. Metastases are the rule and may involve all the organs. The diffuse lymphocytoma is composed of typical small lymphocytes. The myelocytoma may involve the entire marrow cavity and destroy the shaft. The cells are large and mononuclear with prominent hyperchromatic gran-

ules. The erythroblastoma contains cells rich in hæmoglobin and is a striking brownish red. The largest form of this type occurs in the ribs.

All the myelomata cause more or less marked cachexia and anemia and Bence-Jones proteinuria. Rapid destruction of bone, spontaneous fractures, and collapse of joints and vertebræ occur, and there is no bone production. The tumors recede rapidly under roentgen-ray and radium treatment, but the ultimate prognosis is unfavorable because of extensions and metastases.

PROGNOSIS AND TREATMENT OF BONE TUMORS

The prognosis and treatment of bone tumors should be revised in the light of our present knowledge regarding roentgen-ray and radium treatment and the nature of the growths. The suspicion of sarcoma should not be taken as a signal for operation but should call for thorough consideration of the clinical history, the roentgen-ray findings, and the results of therapeutic tests with radium and the roentgen ray. The goal in a great many cases should be non-operative treatment. Myelomata and endotheliomata yield rapidly to the roentgen ray and radium. Osteogenetic sarcoma and chondrosarcoma are not materially affected by radium. The more experienced the pathologist, the less prognostic importance he attaches to the microscopic findings and the more to the clinical manifestations. Tumors in the same group vary in malignancy and blanket rules do not apply.

Giant-cell tumors have usually been treated by curettage, but this method sometimes results in osteomyelitis or septicæmia, and there is a possibility of producing metastases by liberating cells into the blood stream. These disastrous results may be avoided by the use of radium. Radium should be applied externally through the intact skin. It should never be inserted into a curettage cavity as the radiation makes the tissue more susceptible to infection.

Myeloma has an unfavorable prognosis under any form of treatment, but roentgen-ray and radium therapy are the methods of choice.

There seem to be no reports of a surgical cure of angio-endothelioma or of its treatment by physical agents. Because of its multiple origin and early metastasis, the prognosis is unfavorable. The diffuse endotheliomata, however, regress quite rapidly under radiation. The osteogenetic sarcomata vary widely in their response to treatment. There are five grades:

1. Encapsulated extraperiosteal fibrosarcoma: fibrous, cartilaginous, or osteoid stroma in excess of cells; prognosis fair.

2. Sclerosing medullary and periosteal sarcoma: course slow; metastases appear very late.

3. Cellular spindle-cell periosteal sarcoma: stroma scanty or absent; some cures by surgery and other methods.

4. Solid cellular central and subperiosteal sarcoma: some surgical cures of early cases.

5. Very vascular cellular telangiectatic sarcoma: some surgical cures of early cases.

After seven years' trial of radiation in the treatment of osteogenetic sarcoma, the author offers the following conclusions:

1. The histologic changes and the clinical course show that it is possible to give an effective dosage of the roentgen rays or radium to all parts of many osteogenetic sarcomata when the tumors are accessible from all sides.

2. The growth of the cells may be retarded so that they produce calcific material, dense hyalin stroma, or bone.

3. Cellular tumors without much stroma may disappear.

4. Tumors with much intercellular material cannot be made to disappear but may be sclerosed or ossified so that growth stops.

5. The majority of true osteogenetic sarcomata, although retarded in growth, usually prove fatal through metastases. The possibility of a cure by amputation acts against conservative treatment, but as in certain cases life has been sustained for some time by heavy radiation it is possible that this form of treatment distinctly postpones metastasis.

6. By the proper selection of cases and judicious supplementary surgery, the roentgen ray and radium may be made more efficient in the treatment of osteogenetic sarcoma.

WILLIAM A. CLARK, M.D.

FRACTURES AND DISLOCATIONS

Codman, E. A.: *Pathologic Fractures*. *Surg., Gynec. & Obst.*, 1922, XLIV, 511.

In this article Codman gives a résumé of the subject as found in the current literature. He discusses the literature, etiology, pathology, differential diagnosis, prognosis, treatment, prophylaxis, theory, and research. Reference is made to Bloodgood's dictum that fracture as the symptom of onset in a central lesion suggests a bone cyst, and if the patient is 15 years of age or younger, it may be looked upon as almost pathognomonic. In the discussion of the etiology almost every human activity is mentioned. A pathologic fracture implies a trivial cause acting on abnormal bone.

Because sarcoma is dealt with especially, Codman has not gone into the question of pathology deeply, mentioning merely a few features which probably account for the different characters of the fracture. The differential diagnosis depends upon careful pathologic, clinical, and X-ray examinations and even with these it is sometimes very difficult. With the exception of fractures caused by new-growths, pathologic fractures tend to unite without much delay.

The treatment depends upon the pathology. Exploratory incision and expert pathologic opinion are the first requisites. Evacuation of the contents followed by crumpling-in of the walls and re-alignment of the bone is sufficient. In cases of giant-

cell tumor the wound should be opened widely and every bit of "current jelly" tissue removed.

In hopeless cases in which amputation has been refused or is unwarranted, the X-ray, radium, and Coley toxins should be employed.

F. W. CARRUTHERS, M.D.

Smith, M. K.: *Premature Ossification After Separation of the Lower Epiphysis*. *Ann. Surg.*, 1922, LXV, 301.

In the case reported by the author the lower end of the left radial epiphysis and a thin shell of bone from the posterior surface of the diaphysis were separated and the styloid process of the ulna was fractured in an accident. The displacement was reduced under anesthesia with a fair result. Eight months later there was prominence of the head of the left ulna. The X-ray showed obliteration of the epiphyseal line of the radius. At the end of a year roentgenograms showed complete ossification of the radial epiphysis and almost entire disappearance of the ulna. Two years later the patient reported that he had good use of his wrist but that the head of the ulna was prominent. The left radius was $\frac{3}{4}$ in. shorter than the right, while the two ulnae were of the same length.

A review of the literature shows that epiphyseal separation is not uncommon but an arrest of growth following such an injury is rare. The prognosis should always be guarded.

R. S. REICH, M.D.

Von der Huettten, F.: *The Treatment of Fracture of the Patella* (Zur Behandlung der Knie-scheiben-brueche). *Fortschr. d. Med.*, 1922, XI, 174.

According to experience in a great number of cases of fracture of the patella in the clinic of the University of Giessen, the choice of operative suture depends upon whether the patella is fractured alone or the so-called reserve extensor apparatus, the lateral ligaments, is also torn. In the first type of case there is no displacement of the fragments and, though there is pain, the leg can be extended. When there is associated injury of the capsule of the patella and the lateral ligaments, the knee function is definitely destroyed even though the dislocation in the area of fracture is slight. Peripatellar and prepatellar catgut sutures are preferred to wire sutures because a number of investigators (Brunn, Kocher, Thiem) found that in the majority of cases in which the wire sutures were used they were injurious. By accurate suturing of the lateral ligamentous apparatus in over-correction, the fragments of the fracture are firmly pressed against one another and ideal bone repair and good function are obtained.

After the operation the leg is kept in a splint for fourteen days. Passive and active movements are then begun. At the end of three weeks, when the patient is allowed to get up, medico-mechanical treatment, consisting of hot-air baths, early lateral

movement of the patella, and massage of the quadriceps muscle, is given.

In open fractures of the patella it must be left to the judgment of the surgeon whether a primary suture should be done. In secondary suture great difficulties are caused by adhesion of the fragments to the condyles of the femur and retraction of the quadriceps muscle. In the cases of patients carrying insurance the functional results, in spite of perfect healing, were never as good as in those who were uninsured. Hence there should be long-continued after-treatment and observation of insured patients and later a reduction in the high pension to which they were at first entitled.

ENGEL (Z).

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Morison, R.: The "Bipp" Method of Treatment; Bone Cavities and Bone Grafts. *Surg., Gynec. & Obst.*, 1922, XXXIV, 642.

In discussing his use of "bipp" today the author recalls his early method of treating infected war wounds and the difficulty experienced by surgeons in developing a technique which would insure the success the method seemed to promise.

After a proper technique was developed the results were uniformly successful. The method developed by Morison is applicable to the closure of infected wounds without drainage and to bone cavities and bone grafts. He describes it as follows:

"The fact may be recognized that radical operation in these cases may be a difficult and prolonged one, and it always requires patient, persistent perseverance. A large incision is essential to allow of proper access, and it is important to remove sufficient of the sclerosed bone covering the cavity to see every part of it. . . . A skilled assistant should take out every particle of bone as it is separated; otherwise healing of the wound may be delayed until it is taken out or extruded. When possible, the operation should be done with a tourniquet to allow of satisfactory inspection and to prevent the serious loss of blood which may follow one hour or more of operating. If there is any doubt felt as to seeing the whole cavity, aided by a bull's eye light, I pack it with 'bipped' gauze, close the incision by interrupted sutures over this, and at the end of two weeks, dress the wound, take out the sutures, re-open it, remove the gauze, fill the cavity with fat grafts, and resuture, if there is no sign of wound infection.

"As the cases show, it is possible to obtain healing of these septic cavities by first intention, and though some of them may take a long time, failure, as I have proved, is an infrequent event. In my experience the greatest obstacle to prompt recovery is the difficulty of securing a healthy skin covering for these fat-filled cavities. Skin flaps are apt to slough, and skin edges united immediately over the packing are apt to separate and expose the under-

lying fat. In spite of this exposure, the fat, if protected, is not extruded, but after a long time becomes vascularized, the granulations which develop on it join those of the wound edges, and healing occurs with a very small linear depression—not at all resembling an ordinary bone cicatrix. I have watched with great interest this happening in many cases which I have had the opportunity of observing for weeks, until healing had at last followed. Scoring flaps is sometimes sufficient to prevent death of them from arrest of circulation by oedema, and this should always be done. In doubtful cases, such as those with multiple cavities or those in which it is difficult to see to the bottom, operation in two stages is an advance on our earlier methods, and we have recently adopted it when skin flaps are necessary to cover the cavities, especially in such positions as in the head of the tibia, which are specially difficult. In these instances, after preparing the cavity, we outline the skin flap by a deep incision all round, except at the side to be left as a future pedicle. By this means we hope that in three weeks the circulation through the pedicle, increased by cutting off the blood supply from other directions, will suffice to nourish the flap, but our experience with this method is still insufficient to allow of confident statements.

"The only addition I have made to the methods described in the 'bipp' book is that now the skin around the wound is dusted with sterile boracic powder before the wound is dressed. It is also not always wise to aim at the surgical triumph of a wound healed under a single dressing left untouched for three weeks. Blood escaping into the dressing makes it moist, and especially when old scars are present these are apt to break down and produce raw septic areas which interfere with primary healing. A second dressing performed at once with gauze wrung out of spirit may save the situation, and it is preferable to the 'pickling' which we found so serviceable in the earlier and more strenuous days during the war. If the wound is at all moist, dressings should be changed daily until it is dry."

Numerous case reports of exceptional interest are given in detail. JOHN DUNLOP, M.D.

Page, C. M., and Perkins, G.: Some Observations on Bone Grafting: with Special Reference to Bridge Grafts. *Brit. J. Surg.*, 1922, ix, 540.

The authors define a bridge graft as a bone implant filling a definite gap in a bone and ultimately becoming part of that bone. As all of the cases recorded were those of adult males, the new bone formation from the periosteum seen in children is not considered.

Brief reference is made to the various theories advanced to explain the fate of bone grafts. Gallie believes that capillaries grow into the graft from the host bone and that blood circulation is established throughout the graft. The bone cells on the surface of the graft may live and proliferate; those in the

haversian canals die. Absorption of bone begins at once and subsequently involves the whole graft. Leriche and Pollicard maintain that the whole graft dies.

The authors believe that some portion of the graft lives and becomes incorporated with the host bone. They cite one case of ununited fracture of the radius with a loss of 4 1/4 in. of bone in which, within a month of its implantation, an autogenous graft cast off a superficial portion of itself which was killed by inflammation and became consolidated within the host bone.

If the bone graft acts only as a scaffold, as Gallie believes, sterilized grafts would be of the same value as autogenous grafts. Two cases are cited in which best bone grafts were used. Neither graft assumed the appearance or activity of normal bone. These two cases confirm the general evidence that compact host bone is useless as a bridge graft.

The tibia provides the most satisfactory bone graft, but if a curved graft is required, a rib graft may be used. The graft should consist of compact bone, periosteum, and cancellous bone. According to the author's views, periosteum plays little part in the re-formation of bone in the adult. The cancellous bone serves as a route along which new bone formation extends from the host bone into the shaft. The graft should be 2 or 3 in. longer than the gap to be bridged. The more substantial the graft the less liable it is to fracture.

Fixation methods differ. The authors state that pegging one end of the graft into the medulla and fitting the other end into the medulla by an inlay splint is the most sound mechanical method. One end of the graft is driven firmly into the medullary cavity of the most mobile fragment. In the other fragment the authors cut a slot in the compact bone about 1 mm. narrower than the graft and tap the opposite end of the graft into it.

If necessary, catgut, kangaroo tendon, or wire ligatures are used to bind the graft in place. If the host and graft do not remain in apposition, their subsequent union is doubtful. The use of foreign material, such as wires, pegs, bolts, and plates, should be avoided if possible.

Infection and successful grafting are not incompatible providing the graft is firmly embedded. Cases proving this are cited.

Graft fractures are of two types, early and late. The early fracture often takes place while the limb is firmly immobilized. It occurs only at the junction of the host bone and the graft and is due to osteoclasts without subsequent bone formation. Late fractures, which are caused by strain, may occur at any time up to two years from the date of operation. Their site is usually about the middle of the graft.

Postoperative treatment consists of a six weeks stage of rest in plaster of Paris fixation, a stage of partial function in a splint allowing joint motion, and a stage of full function when the graft has become consolidated as shown by roentgenograms.

The success of grafting varies in different bones. The radius can be grafted with the greatest ease. In the ulna the operation is less satisfactory. The humerus offers few difficulties. Grafting in the lower third of the tibia has a doubtful prognosis.

JOHN MITCHELL, M.D.

Lovett, R. W.: The Diagnosis and Treatment of Some Common Injuries of the Shoulder Joint. *Surg., Gynec. & Obst.*, 1922, XXIV, 417.

The author is of the opinion that the symptoms of injury or inflammation of the shoulder joint may be more clearly interpreted by reviewing certain anatomical peculiarities.

In the course of evolution, the shoulder joint has changed from a weight-bearing joint to a hanging joint supporting a considerable load. It is the only joint not held together by ligaments against gravity. It possesses the widest range of motion of all of the joints, being movable in every direction. It is loosely attached to the skeleton through a movable base, the scapula. Consequently certain movements, such as abduction, depend upon co-relation of the shoulder-girdle muscles. Some of the muscles are intimately related to the joint structures, their tendons merging into the capsule. Some of these tendons are separated by bursae. The most important of the bursae is the subdeltoid. With regard to their strength and leverage, the muscles of the shoulder are arranged to favor the adducted position of the arm.

In the treatment of injuries of the shoulder joint the arm should be abducted from the side and held there to remove the weight from the capsule and supporting muscles. This position counteracts the pull of the pectoralis major and the latissimus dorsi, preventing their adaptive shortening.

The author advocates the use of the platform splint for fixation in the abducted position as the only efficient treatment for moderate and serious injuries of the shoulder joint. In cases in which the attachment of the supraspinatus is torn away and in cases of chronic subdeltoid bursitis surgical treatment may be necessary.

JOHN W. POWERS, M.D.

Straub, G. F.: Deltoid Paralysis and Arthrodesis of the Shoulder Joint. *Surg., Gynec. & Obst.*, 1922, XXIV, 476.

Paralysis of the deltoid muscles will render a normally functioning forearm and hand worthless because it prevents control of their movement. As a result the forearm and hand muscles ultimately become atrophied from disuse and are rendered as useless as the deltoid itself.

The treatment may be preventive, palliative, or curative. Preventive treatment attempts to prevent complete paralysis by the use of electricity, gymnastics, and massage. Complete restoration of function by this means is doubtful. The necessary braces and splints should be employed to prevent

over-stretching of the muscles and subluxation of the shoulder joint.

Palliative treatment consists of the use of apparatus suggested by Hoffa, Vulpius, Silver, and others to fix the shoulder joint in the most advantageous position.

The curative measures are: (1) nerve grafting, (2) muscle transplantation, and (3) arthrodesis of the shoulder joint.

Various methods of nerve grafting have been employed by different surgeons, such as transplanting the fifth nerve into the sixth cervical, the median, ulnar, and radial into the axillary, the subscapular into the axillary, and the fifth into the seventh cervical. The results of these procedures are still doubtful.

Muscle and tendon transplantation have given somewhat better results. The paralyzed deltoid has been replaced by the pectoralis major or, as in Hoffa's cases, by a part of the trapezius.

The best result is given by a true bony ankylosis of the shoulder joint. The operative procedure is as follows:

The joint is opened by an incision 4 in. long extending from a point $\frac{3}{4}$ in. internal to the acromioclavicular joint to the outer side of the pectoro-deltoid groove, and the biceps tendon is displaced laterally. The capsule is then dissected from the anatomical neck sufficiently to permit dislocation of the head of the humerus. All the cartilage of the head of the humerus and glenoid cavity is removed down to the spongiosa, and the lower surface of the acromion is exposed. The head is then returned to the capsule in close apposition to the glenoid cavity and the acromion. The arm is abducted at right angles to the body, somewhat inwardly rotated, and slightly flexed to the position of election. A hole is then drilled through the acromion and into the center of the head of the humerus. Into this hole a dowel-peg obtained from the tibia is inserted. A tenodesis of the biceps tendon is then performed at the intertrochanteric groove, the wound is closed, and the shoulder is immobilized in a plaster cast.

RUDOLPH S. REICH, M.D.

Krukenberg, H.: Substitution of the Opponens Pollicis Muscle (Ueber Ersatz des Musculus opponens pollicis). *Ztschr. f. orthop. Chir.*, 1921, xlii, 178.

To overcome the loss of the opponens pollicis muscle the author uses a portion of the superficial flexor muscle of the middle finger. The operation is performed in the following manner:

A skin incision is made from the center of the wrist joint to the proximal joint of the middle finger, exposing the superficial flexor tendon of this finger. One-half of the tendon is split up from the proximal joint to the wrist joint by notching the transverse carpal ligament. Flexing and extending the fingers renders it easier to get around the superficial palmar arch and the crossing branch of the

median nerve. A longitudinal incision is made on the radial side of the first metacarpal bone and a tunnel formed in the ball of the thumb. The split tendon is then drawn through to the metacarpus and securely sutured to the latter while the middle finger is extended and the thumb is laid in the hollow of the hand to relax the tendon. The hand is then bandaged in this position for thirty days.

The result is perfect. The thumb can be placed over the hollow of the hand without closing the fist. An essential condition is, of course, normal movement of the second to fifth fingers. PORT (Z).

Bearse, C.: Amputation Stumps and Their Adaptation to Artificial Limbs. *Surg., Gynec. & Obst.*, 1922, xxxiv, 541.

On the basis of their adaptation to artificial limbs the author compares the amputation stumps of discharged soldiers with those of civil surgery.

The results of the service amputations seem to have been exceptionally satisfactory, evidently because the cases were kept under observation until the artificial limb was worn with comfort for a sufficient period of time.

"The outstanding feature about these cases was that they were treated through to the actual walking stage. How different was the story related by several limb makers who were interviewed. They stated that in civil practice most of their cases were referred by others similarly maimed; very few were referred directly by the surgeon; of those that were so referred very few were still under the surgeon's observation. But more than this, they stated that in many instances in selecting the amputation site the surgeon apparently gave no thought to the future usefulness of the stump. Owing to a lack of interest on the part of the surgeon in the interval between the operation and the fitting of the limb, many patients reported with deformities, such as flexion contraction, which could have been prevented and which seriously interfered with obtaining maximum service from the prosthetic appliance. In other words, lack of co-operation between the limb maker and surgeon frequently caused bad results which were preventable."

Because of these observations the author discusses the essential points regarding the site and type of the amputation and the most common complications.

The article is summarized as follows:

1. Do not lose sight of your patient after an amputation until a properly fitted limb has been prescribed and is worn. The sooner it is worn, the better.

2. Instruct patients that if they have pain at any later date, they should return to you rather than to the limb maker.

3. There is no standardized apparatus for stumps of the upper extremity. As a general rule, save as much as possible, avoiding joints.

4. In the lower extremity avoid tarsal amputations. Nothing is gained by them, and there may be disagreeable complications.

5. The reason of the Symes amputation is due to the fact that it is end-bearing; if doubtful regarding the outcome, amputate at the point of election.

6. The ideal site for amputation of the leg is 6 to 8 in. below the knee. Try not to make the stump any shorter. There is nothing gained by having it longer; greater length may be detrimental.

7. In treating stump complications, it should always be borne in mind that the longer the patient goes without his artificial limb, the longer it will take him to become accustomed to wearing it again.

JOHN DUNSTON, M.D.

Bennett, G. E.: Lengthening of the Quadriceps Tendon. *J. Bone & Joint Surg.*, 1922, N.S. IV, 279.

In order to give a better understanding of his operation for lengthening the quadriceps tendon, the author reviews the anatomy of the anterior thigh. The crureus muscle which lies on the anterior surface of the shaft of the femur in the lower third is easily tied down by adhesions interfering with the function of the other three muscles forming the quadriceps.

Bennett believes that changes within the knee joint are comparable to the changes to be expected in the ankle joint if the tendo achillis were lengthened to correct an equinus deformity which had persisted for a long time. Capsular changes are an entirely secondary consideration.

In one case cited in which the loss of motion had persisted for more than seventeen years the operation described restored flexion to 90 degrees. No contracture of the capsule was noted at operation.

A comminuted fracture of the patella resulted in a stiff knee. This was corrected by reducing the size of the patella. No capsular contraction was noted. Fractures of the femur resulting in adhesions of the quadriceps muscle groups to the bone and fractures of the tibia and fibula with partial ankylosis of the knee yielded to the tendon lengthening operation.

The conclusions drawn by the author on the basis of his experience are:

1. Contraction of the quadriceps without adhesions will cause a loss of knee function.

2. Contraction and adhesion between the muscles themselves or between the muscle and bone will cause loss of knee flexion.

3. Capsular changes are not as constant as muscular changes; knee joints that cannot be forcibly flexed before the tendon is released can be flexed easily afterward.

4. Contraction of the muscular tissue will probably follow long immobilization for inflammatory knee-joint disease, but such joints, if sensitive, should not be operated upon.

The patient's position on the operating table should permit 100 degrees of knee flexion. This is obtained by extending the leg over the operating table.

A straight incision extending from the middle of the patella to the junction of the middle and lower thirds of the femur is made on the anterior surface of the thigh through the subcutaneous tissues and fascia. By lateral blunt dissection the vasti, the attachment of the rectus, and the capsule of the joint are exposed. If there are adhesions, the exposure is made to permit a thorough inspection.

In a simple contraction not associated with adhesions of the tendon and muscles to the femur, only the tendinous section is cut free from its muscular attachments. This is done by means of a linear incision on each side of the tendon, extending from the attachments of the rectus femoris to the patella. These parallel incisions are made deep enough to include the tendinous section of the crureus and are connected with a short incision across the tendon at its upper margin. The entire tendon is dissected free from the rectus to the patella. When the tendon is completely detached, the knee is flexed gently and any points adherent to the capsule are cut. Flexion is carried to 90 degrees. The leg is then brought to 80 degrees of flexion and the tendon reattached to its muscle at this level by means of kangaroo tendon or braided silk.

If marked adhesions are present in the lower thigh, dissection of the vasti from the femur may be necessary. Fat or fascia may be placed between the bone and muscles. With the tendon slipped down to its new position, a gap is left at the lower end of the rectus. This is closed by mattress sutures through the vasti. If a rectus tendon is found which is independent to a point about 1 in. above the patella, it is cut free at its lowest point.

Plaster-of-Paris immobilization follows. The knee is kept in 80 degrees of flexion for three weeks. The plaster is then cut and passive motion is begun. At the end of the fourth week active contraction is encouraged. Massage is usually begun at the end of five weeks. The return of the power to extend the leg is slow, in some cases requiring a year.

JOHN MITCHELL, M.D.

Simon, R., and Stulz, E.: Cases of Accidental Injury to the Knee Joint Treated by Incision and Primary Suture and Cured with Perfect Functional Results (Quelques cas de plaies accidentelles de l'articulation du genou traitées par l'incision et la suture primitive et guéries avec intégrité fonctionnelle absolue). *Rev. de chir.*, Par., 1922, VI, 124.

The authors have treated injuries of the knee joint by excision and primary suture with excellent results. The histories of five such cases are given. In two, the injuries were due to cutting instruments

and in three were contused wounds. Most of them were contaminated. In each case the operation was done about an hour after the accident. The operative field was first carefully cleansed with ether. Following the excision a small silkworm-gut drain was inserted and the synovia, peri-articular tissues, and the skin sutured primarily.

The synovial wound always healed by first intention but in some cases there was a slight slough of the cutaneous edges which retarded cicatrization for several days. This slough was due to disturbances of circulation rather than infection. The temperature rose above 38 degrees C. in only two cases. In one case there was swelling of the knee.

After the operation the limb was placed in a splint or a posterior plaster apparatus and the quadriceps femoris was massaged. The patient was instructed to contract the muscles of the leg and foot several times during the day. A few days after the operation the immobilization apparatus was removed and the patient instructed to make flexion movements of the knee without aid. After ten days the apparatus was entirely removed, and after three to four weeks the patient was permitted to get up.

W. A. BRENNAN.

Schulz, O. E.: A New Method of Operative Treatment of Foot Deformities. *J. Bone & Joint Surg.*, 1922, N.S. IV, 219.

After operation the calcaneus deformity is held in the corrected or over-corrected position only with extreme difficulty. The correction of the heel deformity is difficult because there is only one bone and this bone is deformed. Different surgeons perform different operations on the calcaneus to reduce the deformity incident to flat-foot.

The author attempts to cause supination of the heel by means of a strong tendon and at the same time to secure adduction and inward rotation of the heel. His method is as follows:

The tendon of the peroneus longus is cut in the sole, pulled out behind the external malleolus, and brought to the inside between the gastrocnemius and the flexor digitorum to the posterior part of the internal malleolus. Then, through a canal between the plantar side of the calcaneus and the plantar ligament, the tendon is passed backward under the calcaneus to the outside of the calcaneus where it is fixed to the periosteum. At the same time the heel is placed in inward rotation, adduction, and supination. Contraction of the transplanted tendon will then produce adduction, supination, and inward rotation.

Schulz cites two cases in which the operation was performed with good results.

For club-foot he recommends cutting the tendon of the flexor longus hallucis in the sole, bringing it behind the malleolus externus and back to the inside of the heel under the calcaneus, and attaching it to the periosteum. One case is described, a case of double club-foot in a girl 8 years old which followed

poliomyelitis at the age of 4 years. Two operations had been performed previously on each foot but were unsuccessful. The operation described was performed on both feet, and a plaster dressing was applied and kept on for ten weeks. After ten weeks the patient was able to walk for an hour without any apparatus and without difficulty.

FRANK G. MURPHY, M.D.

Wachter, A.: A New Operative Method for Flat-Foot (Neue Plattfussoperationsmethode.) *Ztschr. f. orthop. Chir.*, 1921, xlii, 168.

After a critical review of the bone and tendon plastic surgery used in the treatment of flat-foot Wachter presents an operation based upon entirely new principles. He makes no use of the mobility between the cuneiform and the navicular bones or between the cuneiform and the first metatarsal. As this mobility is of no account in walking or standing, he establishes here a firm osseous union.

A hook-shaped incision is made from the medial side of the proximal joint of the great toe, parallel to the extensor tendon of the great toe, as far as the tendon of the tibialis anticus and then down and back to two finger-breadths below the internal malleolus. The inner and under margin of the tarsus having been laid bare, a slightly lateral convex incision is made over the entrance of the tarsal sinus, and after longitudinal division of the fascia pedis, the insertions of the short extensors of the toes are pushed aside, down and outward. The bridge of skin between the two incisions, together with the extensor tendons, the dorsalis pedis artery, and the peroneus nerve, is separated from the skeleton of the foot. A small Kocher probe is then inserted laterally from the head of the talus, medially and posteriorly from the inner part of the bifurcate ligament, and in front of the ligamentum talocalcaneum interosseum. It is then directed somewhat obliquely forward and medially between the ligamentum calcaneo-naviculare teres and the ligamentum acetabuliforme to the medio-plantar side of the tarsus. A Gigli saw is introduced into this canal and drawn under the bridge of the soft parts of the back of the foot. The foot is then sawed toward a point on its medial border 2 cm. distal from the tuberosity of the first metatarsus.

In this manner the tarsus is divided into two unequal parts which move on each other easily. The medial and smaller includes the greater part of the navicular and first cuneiform bones, a small portion of the second cuneiform, and the base of the first metatarsal. In the correction of the flat-foot, the medial portion is moved forward. If necessary, a tenotomy of the tendon of Achilles is done. The bones are fixed to one another by strong silk or wire sutures and projecting margins are removed. The divided fascia pedis must be carefully sutured, particularly on the inner border of the foot.

The postoperative treatment consists of two weeks of over-correction in plaster-of-Paris, two

weeks of active movement with hot air treatment and massage, and two weeks of walking with a large solid arch support. After one year the supports may be discarded.

With absolute preservation of the muscles and ligaments, a solid bony bridge from the talus to the proximal articulation of the great toe is formed and a good foot obtained.

With displacement of the cut surfaces in the opposite way, this method can be used in the treatment of pes adductus and club-foot. All irreparably deformed and functionally unserviceable flat feet in persons over 20 years of age should be thus treated, if possible before ankylosis has taken place.

SMITH (Z).

Whitman, A.: Astragalectomy and Backward Displacement of the Foot: An Investigation of Its Practical Results. *J. Bone & Joint Surg.*, 1922, B. 4, 266.

Astragalectomy and backward displacement of the foot gives good results in the hands of any competent orthopedic surgeon. Moreover, as postoperative care is by no means as exacting as that of transplantation and similar operations, it is a method well adapted to the public clinic in which post-operative co-operation is not of the best.

The procedure was originally designed for talipes calcaneus and still finds its greatest usefulness in this condition although its field has expanded. Today it constitutes 75 per cent of all operations performed for foot deformity, being used for dangle foot and as a last resort, for paralytic varus and valgus deformities.

Whitman has taken for special study sixty of 890 cases operated upon, viz., the first ten of each year with the exception of 1919, of which the first twenty were used.

He holds that corrective procedures on the foot depending on bony ankylosis due to apposition of bleeding bone surfaces are failures. In the Whitman operation bony union is not expected, and does not occur, although the reshaped malleoli are laid in a freshly chiselled bed.

The chemical operation is described with the notation that the peronei are now divided in only exceptional cases. The foot being placed in moderate equinovalgus, walking in the cast is encouraged at the end of three weeks. In two to three months the cast is removed and a shoe with a cork wedge in the heel is worn.

The results were satisfactory in 85 to 90 per cent of the cases. Of eight failures, four are laid to insufficient backward displacement of the foot, and the others to a varus deformity due either to faulty placing of the malleoli in their beds or an unapposed tibiotalar ankylosis which should have been transplanted at the same or a subsequent operation. Of the sixty patients only fourteen are now wearing braces, and all of the latter are wearing them because of paralysis above the knee.

DAVID TELSON, M.D.

Destot, E.: A New Method of Astragalectomy. Sur un nouveau procédé d'astragalectomie. *Rev. de chir.*, 1922, 10, 101.

Destot describes a new method of removing the astragalus which is especially applicable to gunshot injuries in which the projectile, passing in the malleolar region, fractures either the internal or external malleolus and more or less involves the tibial plateau. In other conditions he prefers Ollier's astragalectomy.

The steps of the operation described are as follows:

1. A vertical incision 6 cm. long is made descending along the postero-internal border of the tibia, curving at a right angle, passing over the base of the internal malleolus horizontally, coming forward at the junction of the anterior border of the internal malleolus with the tibial plateau, and from there turned to the dorsal surface of the foot above the tubercle of the scaphoid. This incision is carried down to the bone on the first stroke.

2. Oblique osteotomy of the internal malleolus is done and the malleolus detached *en bloc* from the tibial plateau.

3. The articular capsule and the ligaments of the neck of the astragalus are disinserted.

4. The foot is luxated outward.

5. The astragalus is ablated by disinsertion of the latero-internal ligaments and the posterior ligament. The bistoury is inserted between the astragalus and calcaneus to cut the interosseous ligaments. The bone is easily extirpated by rotation.

6. The foot is then replaced and the internal malleolus sutured.

7. Tamponade and drainage of the cavity are done.

According to the author this procedure is extremely easy and will make astragalectomy a more frequent operation. While Ollier's method, which is laborious, is of value in tuberculosis of the astragalus, the new method is more suitable for traumatic cases.

W. A. BRENNAN.

MacLennan, A.: The Treatment of Congenital Hallux Varus. *Surg. Gynec. & Obst.*, 1922, XXXI, 540.

The author presents two cases of congenital hallux varus, in which the deformity was corrected by the following procedure:

The structures on the inner side of the foot were divided by an incision just back of the metacarpophalangeal joint, at right angles to the axis of the toe, and the toe then forced into alignment with the other toes. The raw surface at the site of the incision caused by this manipulation was covered with the redundant tissue excised from the web between the great and second toes. After the operation plaster of Paris was applied.

In cases of duplicity of the toe, a wedge is removed from the tissue of the fused toes, half being taken from each.

JOHN W. POWERS, M.D.

SURGERY OF THE SPINAL COLUMN AND CORD

Pirtle, R. T.: Fracture and Dislocation of the Second Cervical Vertebra in a Child: Case Report. *Internat. J. Surg.*, 1922, XXX, 1621.

Fractures of the upper cervical vertebrae are comparatively rare during childhood. In adults, cervical fracture constitutes about 30 per cent of all fractures of the spine.

The author reports the case of a child of 18 months who was struck by an automobile, its head being caught between the wheel and the fender and violently twisted. Temporary loss of consciousness followed. The only external evidences of injury were a small scar under the right eye and a bruise on the point of the chin. There were no signs or symptoms of pressure on the spinal cord.

X-ray examination showed dislocation and fracture of the second cervical vertebra. The child was kept in a hospital bed for six weeks with 3-lb. traction on its neck, a chin and occiput strap being used. It was then taken home, against advice, before it was fitted with a head brace. While at home it refused to lift its head from the pillow even though it raised its body on its knees. A crutch type of brace with posterior bars extending along the back of the neck to the occiput and with brow and chin straps was applied about one week later. Seventeen weeks from the time of the accident it walked and played around without discomfort. The brace was worn four months. It was removed at night, but the child would not raise its head from the pillow in the morning until the brace had been re-applied. Ultimately it became able to sit up without the brace and today shows no evidence of injury.

The author calls attention to the great amount of damage that had been done the vertebral column without injury to the spinal cord. If this patient had been older the ideal method of treatment would have been a plaster-of-Paris jacket with a grow band. The brace had the advantage that it gave the child freedom of its body at night.

WALTER C. BURKET, M.D.

Hibbs, R. A.: Fracture-Dislocation of the Spine Treated by Fusion. *Arch. Surg.*, 1922, IV, 309.

Fracture dislocation of the spine is a condition overlooked in a large percentage of cases, the symptoms persisting from six months to twenty-five

years before a diagnosis is made. Of the twenty-two cases reported, the lesion was in the lumbar region in seventeen, and in eleven of these in the fifth lumbar vertebra. The great frequency of injury to this vertebra is explained by two factors: (1) the mechanically difficult angle at which the vertebra articulates with the sacrum, and (2) the great frequency of congenital anomalies in its development, size, and shape, and its plane of articulation with the first sacral vertebra.

A history of injury was obtainable in seventeen of the cases. The average length of time between the injury and the operation was nine months, but in six cases the lesion was acquired in childhood, the symptoms not appearing until adult life when completed ossification of the vertebrae destroyed their capacity for accommodation to the changes in shape and position.

In thirteen cases operation disclosed a fracture of the body and processes, and in nine cases, a fracture of the processes only. There was no evidence of nerve root or cord injury, but complaint was made of pain in the neck, shoulders, or back, or of weakness and pain of sciatic character in one or both limbs. The site and character of the dislocation governed the signs noted on examination. Lumbar fractures were characterized by limitation of motion and pain on extension due to impingement of the spines.

Very careful X-ray examinations were of value merely in indicating the need of operative interference but by no means denoted the extent of the injury or the changes in the adjacent joints.

Fusion was effected by the classical Hibbs method. Emphasis is placed on the importance of care in separating the periosteum in an unbroken sheet and arresting all hæmorrhage by means of gauze packs. At least one healthy vertebra above and below the injury was included in the fusion. After eight weeks of rest in bed, the use of a Taylor spine brace for two to four months is indicated.

The rationale of the treatment is that the symptoms were caused by the mobility of the altered joints and ununited fractures and this motion would be eliminated by fusion. The results bear out this reasoning as complete relief was given in every case.

DAVID R. TELSON, M.D.

SURGERY OF THE NERVOUS SYSTEM

Lusena, G.: The Late Paralysis of the Ulnar Nerve Following Fractures of the Distal Extremity of the Humerus (Le paralisi tardive del nervo ulnare successive a fratture dell'estremo distale dell'omero). *Chir. d. organi di movimento*, 1922, VI, 139.

Late paralysis of the ulnar nerve following injury is rare, considering the large number of fractures

of the distal extremity of the humerus which recover without presenting nerve complications.

The author reports two cases and refers to those found in the literature. Neel, in 1919, collected ten cases, in one of which the interval between the injury and the appearance of the paralysis was fifty years, and Hohmann in 1921 reported a similar

case in which the paralysis developed seventeen years after the injury.

The author's first case was that of a woman of 21 years whose left arm was deformed as the result of an injury received nineteen years previously. Electrical treatment and massage gave excellent results.

The second case was that of a man of 45 who sustained an injury to the left elbow forty years previously and four years later fractured the right elbow. Examination showed deformities of both of the upper limbs and severe paralysis of the ulnar nerve in the right arm. A large fibrous pseudoneuroma was resected. Subsequently the patient was able to resume his work but there was absence of sensation in the region of the ulnar nerve.

An old fracture of the capitulum humeri, especially if it is followed by valgus of the elbow, is a fundamental condition of late paralysis of the ulnar nerve, as it is also forced and prolonged flexion of the elbow. In fractures of the capitulum cured with valgus of the elbow the ulnar nerve is so greatly distended that it may be injured by the excessive tension and pressure of flexion of the elbow. Whatever its cause, valgus is an important factor increasing the distension of the nerve.

In some of the cases in the literature and in the author's first case simple electrical treatment and rest effected a cure; in others, neurolysis failed to cause improvement. In severe cases of degeneration resection of the nerve may be necessary. In cases less severe, but with marked valgus, a cuneiform supracondylar osteotomy, the excavation of an epicondylar-ulnar groove, or transposition of the ulnar nerve to the front of the humerus may give good results.

W. A. BRENNAN.

Engel, H.: A Case of Paralysis of the Upper Plexus Duchenne-Erb Paralysis Following Operation for Torticollis (Ueber einen Fall von oberer Plexuslähmung (Erbischer Lähmung) nach Schiefhalsoperation). *Arch. f. klin. u. Unfall-Chir.*, 1922, 24, 61.

An operation performed on a girl of 8 years for torticollis of the left side was followed by paralysis of the left deltoid, the biceps, and the supinator longus with degeneration. The paralysis was noticed three weeks after the operation when the plaster-of-Paris dressing was removed and is now disappearing.

The operation was performed under general anesthesia with oblique suspension of the head in a Gliston suspender and traction on the arm of the affected side. Resection of a piece of muscle at the bifurcation of the sternocleidomastoid was done and a plaster-of-Paris dressing was applied with the neck in slightly exaggerated correction.

In the literature the author has been able to find the reports of only two similar cases. In both of these there was complete recovery from the paralysis. According to French investigations, traction on the plexus plays an important rôle in the origin

of Duchenne-Erb paralysis. Studies made on the cadaver to determine the conditions of tension in the usual operation for torticollis disclosed the fact that it was with the dividing of the insertion of the sternocleidomastoid that the entire plexus, particularly its fifth and sixth roots, was forcibly stretched when the head was markedly inclined and the arm drawn diagonally to the side and back. In this procedure the nerves are bent over the transverse processes of the fifth and sixth vertebrae and then or later are injured. Therefore, even in the first days following an operation for torticollis, an examination for signs of paralysis should be made in order that the dressing may be loosened in time.

MOSKOWICZ (Z).

Laewen, A.: Freezing of the Sciatic and Saphenous Nerves in Painful Angiospastic Conditions of the Lower Extremities (Verneimung des Nerven ischiadicus und des Nervus saphenus bei angiospastischen Schmerzzuständen der unteren Extremität). *München med. Wchnschr.*, 1922, lxx, 389.

The author has been successful in treating the severe pain of senile gangrene during the waiting period up to the time of demarcation by freezing the sciatic nerve.

The case reported was the second one with angiospastic attacks of pain of arteriosclerotic origin in which good results were obtained. The cold foot again became warm, and after nine months the patient was still free from pain and the expected gangrene had not appeared. The course and the result of the examination of the capillaries are reported in a detailed history. The operation was done under local anesthesia. The sciatic nerve was exposed, anesthetized with 5 c.cm. of 4 per cent solution of novocaine, bluntly divided into halves, and then frozen for twenty minutes with the author's apparatus. The saphenous nerve was treated in the same way for ten minutes. Following this procedure small blebs and ulcerations developed but they quickly disappeared. The motor paralysis did not disappear but the sensory paralysis receded partially. It is a well-known fact that protracted attacks of pain precede the gangrene. In this case the vascular spasm lasted fifteen hours.

Under similar circumstances, Zwirn and Hayem resected the peroneal and tibial nerves successfully.

The author discusses in detail the effect of the freezing paralysis on: (1) the pain, (2) the disturbances in circulation, and (3) the development of trophic ulcers.

The pain is relieved, but there is a motor paralysis of the foot. The return of sensation in the skin was rapid in the eighth and ninth months.

The examination of the capillaries yielded some interesting findings. At first there was a loss of tone in the smallest arteries and capillaries. After about half a year the condition was the same as on the other side, but the vessels showed no

adaptability to the static changes of blood pressure, dilatation occurring when the legs hung down. Vascular spasms did not return. On the application of heat the dilatation of the capillaries was more marked than on the other side. Evidently this was not due to the division of the nerve as Bier was unable to demonstrate any influence of the nerves upon reactive hyperemia (diseased vascular system?).

The trophic disturbances appearing after the freezing are of great interest since no cicatrix is formed at the point of the freezing and therefore in the regeneration this area is not the source of stimuli favoring the development of trophic ulcers. The interval up to the time of appearance of such lesions was six months.

According to Leriche, adhesions are responsible for a persistent irritation which acts as a vasodilating stimulus. This would explain the interval up to the time of the appearance of the ulcers. Bruenings lays stress on the importance of defective regulation of the vessels, disturbances of the secretion of sweat, and also perhaps special trophic disturbances, in addition to the loss of sensory impulses. The main factor is the stimulation which is carried to the sympathetic nerve probably by way of the spinal cord. This is indicated by the occurrence of healing after resection of the neuroma and before regeneration of the nerve. However, as this stimulation is absent after freezing, other conditions must be responsible to some extent.

The development of ulceration occurs about simultaneously with the more marked regeneration in nerves. Palpation in the area of sensation causes pain in the terminal ramifications (Hoffmann's symptom). The author believes that there may be a developmental stage in the regeneration of nerves which acts as a tissue stimulant without being sufficient for other reactions (uninnervated tissue). Therefore there may be a critical stage of regeneration which predisposes to trophic disturbances. In the case reported the ulceration on the heel had disappeared after eight and one-half months, but the more peripheral granulating part had not healed.

Because of its harmlessness, the procedure described is preferable to the Wietung operation. The technique may be still further improved. Perhaps the freezing may be done more deeply so that the foot muscles are not paralyzed. The advantage of higher freezing lies in its effect upon more extensive areas of the vascular system.

KULENKAMPTZ (Z).

Heile: Surgical Treatment of Non-Traumatic Sciatica (Zur chirurgischen Behandlung der nichttraumatischen Ischias). *Zentrabl. f. Chir.*, 1921, XLVIII, 1869.

The simplest non-surgical treatment of sciatica, and one which, in from 50 to 70 per cent of the cases, brings about a cure, consists of intraneural injections of novocaine and common salt. Heile states

that it is absolutely necessary to make the injections between the nerve strands as the fluid must loosen adhesions. Large quantities must therefore be injected. Alcohol injections are justified only in neuralgias of the terminal branches of individual sensory nerves. Stoffel's method is indicated only in exceptional cases.

Heile operated on eleven cases by exposing the trunk of the sciatic nerve at the foramen ischiadicum (neurolysis). In nine cases a permanent cure resulted. In two cases there was recurrence with sciatic root symptoms; subsequent resection of the second and third posterior sacral roots resulted in a cure which, to date, has lasted four years.

Heile shows a series of microscopic drawings demonstrating how intraneural inflammatory adhesions may be the cause of sciatica, and gives photographs, taken when the trunk of the sciatic nerve was exposed, to show that varix of the vena comitans and false insertions of the piriformis muscle are also responsible for sciatica by causing traumatic injury. Extirpation of the varicose veins and of the muscle resulted in a cure.

In the discussion of this paper when it was read before the Surgical Society at Heidelberg, Valentin pointed out that Edinger and Reinhardt had already claimed that varicose veins are responsible for sciatica, and inquired of the lecturer whether the adhesions of the nerves shown in the pictures were not to be attributed to the endoneural injections. To the second question Heile replied in the negative, and in reference to the first remarked that the varicose formation had already been described by Quénu.

VALENTIN (Z).

Gill, A. B.: The End-Results of the Stoffel Operation in Cases of Spastic Paralysis. *Arch. Pediat.*, 1922, XXXIX, 320.

In cases of spastic paralysis the absence of cerebral control causes the larger and stronger muscles of the limb to overcome their more feeble antagonists so that a deformity is produced. At first this deformity is functional but later it becomes anatomical.

In the upper extremity the deformity is manifested by flexion of the elbow, the wrist, and the fingers, and pronation of the forearm. In the lower extremity there is flexion of the knee, adduction of the thigh, and plantar flexion of the foot.

The object of the Stoffel operation, a partial selective neurectomy, is to obtain a muscular balance of power by reducing the innervation of the stronger muscles and, in part, breaking the vicious circle of the peripheral reflex arc which causes the spasticity.

The nerve is exposed, freed from the surrounding tissue, partially retracted out of the wound, and separated into its constituent bundles. The bundles are then tested with the electrode and the nerves which supply certain muscles are excised in whole or in part, according to the requirements of the case.

H. A. MCKNIGHT, M.D.

MISCELLANEOUS

CLINICAL ENTITIES — GENERAL PHYSIOLOGICAL CONDITIONS

Luebbert, A., and Luebbert, H.: *The Genesis and Therapy of True Tumors* (*Genese und Therapie der echten Geschwulste*). Hamburg: Behre, 1912.

True tumors owe their origin to the tendency of cells to regenerate along false paths. Precarcinomatous diseases, mechanical, thermal, actinic, and chemical stimulation may favor tumor growth. The cell reacts first with a loss of protoplasm resulting in a bare nucleus. This nucleus is then destroyed or carried away by the wandering cells, or disappears in the neighboring cells. Only an injured cell, in the struggle for self-preservation, can exert such a phagocytosis on a neighboring nucleus. A cell so impregnated represents the mother cell of the tumor cells, the center of proliferation.

Highly developed tissue, like striated muscle and specific nerve cells, possesses only a limited power of regeneration and therefore rarely undergoes blastomatous proliferation. Such a change occurs more frequently in the less highly differentiated tissues, such as epithelium, connective tissue, periosteum, bone marrow, and lymphatic tissues. Repeated cell division due to physiological or external causes (caustics, crural ulcer, gastric ulcer) also favors cell proliferation along false paths. The more the frequency of cell division is increased by any kind of stimulation, the greater the possibility of malignant degeneration.

If the communication from cell to cell is easy because of little interstitial substance, a reciprocal nuclear phagocytosis results all the more readily. The cell loaded with potential energy by the absorption of a nucleus produces daughter cells which endeavor to separate themselves from their surroundings and, as a result, become freed from the regulating influence of the organism and grow exclusively.

The blastoma cells vary in their form and functional valency according to the nature of the nuclear material absorbed and other factors. In some instances special cell forms give rise to mixed tumors. Such centers of proliferation developing from nuclear phagocytosis are very difficult to find. They lie in the normal intermediate portion of the tumor area and in the normal periphery of the neoplasm.

MAY (Z).

Ravaut, Boulin, and Rabreau: *A Variety of Benign Suppurative Paradeno-Lymphitis of Septicæmic Type and Its Relation to Subacute Inguinal Lymphogranulomatosis* (*Sur une variété de paradenolymphite suppurative bénigne à forme septicémique, ses rapports avec la lymphogranulomatose inguinale subaiguë*). *Progrès méd.* (Par.), 1912, III, 475.

The authors call attention to a variety of adenopathy of unknown nature which is almost always

suppurative and fistulous and generally situated in the region of the groin although it may occur also in other areas, especially the neck. This condition is generally accompanied by an increase in the size of the liver and spleen and a change in the blood picture which indicate its infectious nature. The point of entry is almost always in the skin or mucosa. The organism responsible is unknown.

Attention has been called to the condition by various authors from time to time, beginning with Chassaignac in 1850. Nicolas, Durand and Favre, and Gaté claimed that it is usually of venereal origin. Their histologic findings, however, are open to doubt as they classed the condition as subacute inguinal lymphogranulomatosis with glandular purulent foci comparable to Hodgkin's disease.

During the past two years the authors have observed and studied many cases of the affection. They state that it frequently extends beyond the limits of the inguinal glands and assumes the appearance of a generalized disease involving all the lymphopoietic system and varies in its intensity despite its chronicity. It appears always to evolve in a benign manner. Certain cervical adenopathies which have been considered tuberculous seem to belong to this group.

On account of the benign character of the condition the authors believe it erroneous to compare it to Hodgkin's lymphogranulomatosis which is malignant. An accurate name cannot be given it until the infectious agent has been isolated. Further research will show whether this agent is a protozoan or a bacterium and whether it is responsible for all adenopathies. In order to prevent confusion in the meantime the authors suggest designating it as "benign suppurative paradeno-lymphitis of septicæmic type" on account of its evolution and its extension to the lymphopoietic system.

The clinical details, differential diagnosis, treatment, etc. are dealt with. W. A. BRENNAN.

SERA, VACCINES, AND FERMENTS

Carrel, A., and Ebeling, A. H.: *Heat and Growth-Inhibiting Action of Serum*. *J. Exper. M.*, 1912, XXX, 647.

It is known that plasma or serum obtained from an adult animal restrains the growth of a pure culture of homologous fibroblasts. The purpose of the experiments reported in this article was to study the modifications occurring in the rate of growth of fibroblasts when the serum composing the culture medium had been heated to various temperatures.

For their work the authors obtained serum from the plasma of chickens about one year old which had been fasted for twenty-four hours. The results are summarized as follows:

The action of heat at 56 degrees C. increased the inhibiting action of serum obtained from young adult

chickens on the proliferation of fibroblasts by 15 per cent. The action of heat at 70 degrees C. increased the inhibiting action by 34 per cent. When the serum was heated to 100 degrees C., its inhibiting action became about equal to that of non-heated serum. Therefore heated serum contains a factor which markedly inhibits the growth of fibroblasts and develops at, or resists, a temperature of 70 degrees C.

These experiments confirmed the results obtained by another investigator in a study of the growth of guinea-pig bone marrow in homologous serum unheated and heated to 56 degrees C. The growth of bone marrow was found to be more extensive in unheated than in heated serum. The differences in the action of both sera were more striking than in the experiments reported herein. This was due to the fact that the investigator used a medium containing a very large amount of serum and observed lymphocytes instead of fibroblasts.

The increase of the inhibiting power of serum after it had been heated to 56 and 70 degrees C. may be considered as due to the production by the heat of a change which renders the serum more toxic for homologous fibroblasts. It may be attributed also to the destruction of substances presenting the same heat resistance as complement and amboceptor and partly protecting the cells against the inhibiting action of a third substance resisting heat at 70 degrees C. Serum modified by heat acts in an opposite manner on heterologous tissues. Heated serum is a better culture medium for heterologous cells than unheated serum.

Recently the authors have found that the inhibiting action of dog, rabbit, and cat serum heated to 56 and 66 degrees C. on the rate of multiplication of fibroblasts is very much decreased. It seems that the factors which protect the organism against foreign cells and bacteria might also oppose the growth-inhibiting factor of serum and allow the cells to display a greater activity.

The results of the authors' experiments are summarized briefly as follows:

The inhibiting action of homologous serum on the proliferation of fibroblasts *in vitro* was increased after the serum had been heated to 56 and 70 degrees C. This action decreased after the serum had been heated to 100 degrees C. GEORGE E. BEILBY, M.D.

BLOOD AND LYMPH VESSELS

Wilson, G.: Brachial Monoplegia Due to Thrombosis of the Subclavian Vein. *Am. J. M. Sc.*, 1922, clxiii, 899.

The author reports two cases of brachial monoplegia with thrombosis of the subclavian vein.

Case 1. The patient was a negro, aged 25 years, who awoke from a three-hour nap with numbness and swelling of the right arm. There was no pain, headache, or other symptom.

Examination showed a questionable weakness of the lower half of the right side of the face. The

posterior cervical glands were slightly enlarged. In the right arm, which was paralyzed and greatly swollen, there were no tendon reflexes. The swelling was doughy, and pitted on pressure. Several large blebs were present on the extensor surface of the forearm. The radial and brachial pulses could not be felt. The other extremities were normal. The lungs presented signs of acute bronchitis, and the right upper lobe showed signs of infiltration. The heart was normal. No tubercle bacilli were found in the sputum but a guinea-pig injected with centrifugized sediment of the sputum died of tuberculosis. There was a mild secondary anemia. The white blood count was below 10,000. The Wassermann reaction was negative. Blood cultures was sterile. The temperature ranged between 99 and 104 degrees F.

The patient recovered considerable power below the elbow, but practically none above. The radial pulse returned as the swelling of the arm subsided. Atrophy of the supraspinatus, infraspinatus, deltoid, and biceps muscles was noted. The patient died.

Autopsy revealed miliary tuberculosis with caseation of the mediastinal, cervical, and retroperitoneal lymph nodes. The subclavian vein was not dissected out.

Case 2. The patient was a negro lead worker, aged 22 years, who had been treated previously for secondary syphilis, bubo, and tertiary syphilis. He had given up his work with lead because of the symptoms of lead poisoning. One morning he awoke with intense swelling and paralysis of the entire left arm. After the first twenty-four hours, which were free from pain, severe pain developed. About thirty incisions made in the arm were followed by the discharge of considerable serum and subsidence of the swelling.

Six weeks later the left arm was completely paralyzed, with loss of the deep reflexes and impairment of all sensation below the elbow. The swelling had completely subsided. There was considerable atrophy of the muscles of the left hand and forearm. The Wassermann test of the blood and spinal fluid was negative. The patient was treated with anti-syphilis remedies, massage, and galvanism. At the present time sensation and motion in the extremity are returning and the author believes that recovery will be complete.

Wilson believes that the etiological factor in the first case was tuberculosis and in the second case syphilis. He states that phlebitis of the large veins draining the upper extremity is rare.

WALTER C. BURKET, M.D.

Moore, C. A.: A Case of Subclavian Aneurism with Cervical Ribs. *Lancet*, 1922, cclii, 1045.

The author reports a case of saccular aneurism of the subclavian artery which presented itself as a pulsating swelling above the left clavicle in a man, aged 55 years, who was unaware of it and sought treatment for a cough. Examination showed an expansile, pulsating, walnut-sized prominence in the

lower left posterior triangle of the neck. There was no palpable thrill or bruit. The radial pulses were equal. The swelling could be moved laterally but was attached to the underlying structures. Proximal pressure on the subclavian artery caused collapse of the swelling. A cervical rib could be felt internal to the tumor and another on the opposite side of the neck. These were shown by the X-ray. The distal extremity of the right cervical rib was bulbous and that of the left one was united to the first dorsal rib. The patient began to complain of pain down the inner side of the left arm and there was a slight increase in the size of the swelling. The Wassermann reaction was positive.

A horizontal incision extending along the clavicle exposed a cherry-sized sacular diverticulum arising from the front of the third part of the subclavian artery which appeared to be otherwise normal. The aneurism was thin-walled and could be emptied by compressing it. The cervical rib was exposed by a second incision parallel with the edge of the trapezius, divided at its neck well beyond the brachial plexus, and disarticulated at its distal end where there was a joint with cartilage and a complete capsule. This rib was $2\frac{1}{2}$ in. long and had a well-developed neurovascular groove at its distal end. The subclavian artery was ligated on both sides of the sac with kangaroo tendon.

The radial pulse began to reappear on the fourth day. Arm movements were normal. There was a little surgical emphysema of the right chest and face but none on the left. The aneurism could not be seen but could be felt as a firm non-pulsating mass. The patient made a complete recovery.

In every case reported in the literature the dilatation was distal to the rib. In the author's case the aneurism sprang from the front of the artery. Persons with cervical ribs seek treatment mainly for symptoms connected with pressure upon the brachial plexus or the subclavian artery. The smaller ribs are more apt to cause trouble in the plexus, while the larger ribs are more apt to cause disturbances in the subclavian artery. Jones states that the brachial plexus is not pressed on if the rib can be distinctly palpated in the neck. In the cases of cervical rib reported in the literature there were no operative deaths.

The author refers to the experiments of Halsted on partial occlusion of arteries by means of aluminum bands.

WALTER C. BURKET, M.D.

Cannoyt, G.: A Spontaneous True Exo-Extra-Cranial Aneurism of the Left Internal Carotid Artery (*Aneurisme spontané vrai exo-extra-crânien de la carotide interne gauche*). *Arch. franc. de chir.*, 1922, XXV, 395.

The author has had the opportunity to treat two cases of paralysis of the four cranial nerves—the glossopharyngeal, the pneumogastric, the spinal, and the great hypoglossal. One of the patients was a man with a malignant tumor of the neck, a branchioma, and the other a woman with an

aneurism of the internal carotid artery near the base of the brain.

Cannoyt describes in detail the topographic anatomy of the four cranial nerves and discusses their pathology.

In the case of aneurism reported the dilatation was near the base of the cranium on the left side beneath the posterior orifice through which the ninth, tenth, and eleventh nerves pass, and beneath the anterior condylar orifice through which the twelfth nerve passes. It was continuous along the cephalic part of the left maxillo-pharyngeal space, and caused compression of the four nerves. Such a dilatation must be differentiated from: (1) an acute retropharyngeal abscess; (2) a chronic retropharyngeal abscess; and (3) tumors, especially malignant tumors.

In the author's case the diagnosis was based on the history, the functional symptoms, the situation and consistency of the tumefaction, and its rhythmic pulsations and expansion. The expansion, while coinciding with the pulsation, differed from it because it was due, not to a raising up of the tumor, but to a momentary increase in its volume. This was absolutely pathognomonic because only a sac in direct communication with an artery can show it. Moreover, compression of the primary carotid below the tumor rendered the latter immobile.

The situation of the aneurism in the internal carotid was evident from the fact that the temporal pulse was not retarded. There were no findings to suggest a false or traumatic aneurism. The cause of such a lesion is probably syphilis, but there were no clinical or other findings to prove this.

The author discusses the indirect and direct methods of dealing with an aneurism of this region. In his opinion the only treatment possible in such a case is ligation of the primary carotid artery preceded by biniodide treatment and prolonged digital compression.

W. A. BRENNAN.

Silberberg, I. W.: The Palpation of the Popliteal Artery (*Ueber die Palpation der Arteria poplitea*). *Moderne Med.*, 1921, I, 13.

The peculiar predisposition of the popliteal artery to aneurismal and thrombotic diseases is due to its exposure to injury by the posterior border of the tibia during full joint extension and its displacement by various positions of the knee. In the absence of a pulse in the dorsalis pedis artery, the character of the blood supply of the lower extremity is usually determined by indirect methods, especially that of Moszkowicz, but such methods are not satisfactory substitutes for a direct palpatory examination of the vessels.

The usual method of seeking the pulse in the popliteal space by lateral palpation with the knee bent has always failed the author in cases of gangrene of the foot. This can be easily understood from the topographic-anatomical relationships. The artery is so movable in the rhombus of the popliteal space and is covered by such a deep layer of fat anteriorly and posteriorly (up to 1 cm.) that it

escapes the palpating finger and cannot be fixed against any firm background. After repeated efforts, the author believes he has found a method which, though it requires a certain amount of practice, is both simple and practical. The patient is placed on the normal side, somewhat prone and in such a position that the affected extremity lies in semiflexion behind the normal extremity and is firmly supported in its entire extent. In this way complete muscular relaxation and freedom from weight-bearing are obtained and the arterial tube is brought about 1 cm. nearer the skin surface. The examiner then faces the patient and very slowly presses with the finger tips of both hands the upper and lower triangles of the rhombus simultaneously, very slowly, and without force and, if necessary, pushes the nerve laterally. Silberberg was able to palpate the pulsation much more frequently in the lower triangle where the artery, contrary to Pirogoff's findings, lies nearer the surface although covered by the vein and a neurovascular plexus.

In conclusion, a technique of amputation in a site of election is described. After the preparation of an anterior skin flap, an aperiosteal resection of the tibia is done at the level of the tuberosity and followed by exarticulation of the fibula and a two-stage division of the posterior skin-tissue bridge. In one case the ideal healing of the wound was probably influenced by the removal of the thrombus from the popliteal artery; a severe hæmorrhage was arrested by ligation. VON DER OSTEN-SACKEN (Z).

Fasano, M.: Incision of the Thrombosed Femoral Artery in Beginning Gangrene of the Extremity:

Cure: *Arteriotomia della femorale per trombosi con incipiente gangrena dell' estremità: guarigione.* *Arch. ital. di chir.*, 1922, v, 207.

The patient, a 68-year-old man, had had violent shooting pains in his left foot for a month. He was admitted to the hospital in a state of shock, and a diagnosis of senile gangrene was made. Deep palpation revealed a hard, nodular cord corresponding to the femoral artery, the pulsations of which could be traced 3 cm. below the femoral ring. The fourth and fifth toes were very blue and on deep palpation were painful. The patient was operated upon three days later.

An incision 12 cm. long was made medial to the course of the artery which showed as a hard, red, non-pulsating cord except for a distance of 3 cm. below the femoral ring where the pulse wave was halted. One centimeter below the pulsation the artery was incised for a distance of 3 cm. and an organized adherent thrombus was pressed out in fragments from below by the left hand introduced as far as the insertion of the adductors. A spurt of arterial blood followed the thrombus. A hæmostat was applied below the incision and the upper segment of the artery then treated in the same manner. The thrombus in the upper segment came out intact as it was not adherent to the vessel wall. The arterial incision was closed with fine silk.

After two days the pulsation of the dorsalis pedis disappeared, the pain disappeared gradually, the fourth and fifth toes sloughed off, and the stumps of the toes healed. Ten months after the operation the patient was able to walk normally and the foot was healed and free from pain. The femoral artery pulsated 7 cm. below the inferior angle of Scarpa's triangle although there was no pulsation in the dorsalis pedis artery. This is explained by the position of the deep femoral artery which arises about 5 cm. below the femoral ring and by the smoothness of the intima at this point as compared with the roughness of the intima of the lower segment, a condition favorable for the formation of another thrombus which doubtless developed with disappearance of the pulse in the dorsalis pedis artery. After the re-formation of the thrombus the leg was supplied by the collateral circulation of the deep femoral artery which was not obstructed.

H. F. DUNN, M.D.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Behrend, M., Radasch, H. E., and Kershner, A. G.: The Comparative Results of the Ligation of the Hepatic Artery in Animals: Its Application to Man. *Arch. Surg.*, 1922, iv, 661.

Experiments made on dogs, cats, guinea-pigs, and rabbits demonstrated that histologically there is degeneration of the liver cells in all cases in which ligation of the hepatic artery is done.

The lesion resembles somewhat the changes that occur in acute yellow atrophy of the liver. This fact seems to indicate an acute anæmia of the liver followed by a general necrobiosis of the hepatic tissue.

The hepatic artery in man is an end artery, and when even a branch of it is tied there is a microscopic change in the liver cells. Ligation of the hepatic artery is therefore dangerous at all times. This has been proved in the few cases reported in which ligation was done on account of aneurism or some other pathologic condition. MORRIS H. KAEN, M.D.

Williamson, C. S., and Mann, F. C.: Postoperative Peritoneal Adhesions: An Experimental Study. *Surg., Gynec. & Obst.*, 1922, xxxiv, 674.

In an experimental study on dogs in which numerous foreign substances were used to prevent or retard the formation of postoperative adhesions, a gelatin-gum-acacia preparation was found to be most efficient. The livers of dogs were traumatized and after the application of the foreign substance were examined for the formation of adhesions. Paraffin oil, olive oil, lanolin, boric acid and lanolin, sodium chloride, iodine, ether, glucose, dextrin, silver foil, corgile membrane, catgut, and rubber dam were employed with poor results. Sodium citrate not only failed to prevent the formation of adhesions but in some cases proved harmful since it prolonged the oozing of blood.

One part each of gelatin and gum acacia to two parts of water to form a compound with extraordinary adhesive qualities and no reaction dissolves slowly and is gradually absorbed from the general body cavity. After boiling, the preparation was poured into lead tubes like those used for tooth paste. When it was applied experimentally the traumatized site of the liver healed well under the layer of solution and the formation of adhesions seemed to be prevented.

H. W. FINK, M.D.

Ebeling, A. H.: Cicatrization of Wounds: The Temperature Coefficient. *J. Exper. Med.*, 1922, XXV, 537.

Cicatrization is a complex phenomenon which probably requires the co-ordinated activity of many factors. The formation of granulating tissue during the latent period and its contraction, the mobilization and proliferation of the epithelium, and the wandering of the latter on the surface of the granulations are themselves intricate processes which may be governed by physical as well as chemical changes. Alterations of the viscosity of the surface tension of the fluids and the anatomical structures may play a rôle as important as chemical changes. To ascertain whether physical or chemical changes are more especially involved, the author determined the value of the temperature coefficient of the phenomenon.

For his experiments two young alligators were chosen because these animals may be kept as well at a temperature of 38 degrees as at 23 degrees C. They weighed respectively 309 and 72 gm.

After a rectangular flap of skin on the ventral side of the animals was resected, they were placed, until the wounds healed, in a room having a temperature of 38 degrees C. Several days later a second resection was made in a different area on the ventral surface of the body and they were placed in a room with an average temperature of 23 degrees C.

Ebeling draws the following conclusions:

After a rise of temperature of 10 degrees C. the rate of cicatrization was increased about twofold. This result could be expected since wound healing is closely related to growth and regeneration. It is well-known that changes in temperature affect the metabolism and the development of certain organisms in the same manner as a chemical reaction. In spite of the complexity of the factors which bring about cicatrization of a wound, it appears that the velocity of the phenomenon depends on the rate at which certain chemical changes take place.

GEORGE E. BENTON, M.D.

Schaeck, W.: Some Problems of Surgery Connected with Questions of Regeneration (*Einige Aufgaben der Chirurgie im Zusammenhang mit Regenerationsfragen*). *Festschr. d. russ. Chir. Pirogoff-Ges.*, Petersburg, 1922.

Inspired by the brilliant work of Bier, the author undertakes to show that surgical investigation has

no more fertile field than the questions of regeneration and restitution of tissues after injuries, diseases, and surgical operations. The transplantation of tissues (bone, fascia, fat, muscle), on which so much work has been done, may also be referred to regeneration since most transplants slowly perish and are replaced by bone tissue, and the rôle of the transplant is to provide a suitable soil for the growth of new tissue. The task of surgery is to study the conditions and causes of regeneration and the practical application of the knowledge obtained.

Of the internal stimulants influencing regeneration the author emphasizes internal secretions, hyperæmia, warmth, moisture, function, and rest. He then takes up in greater detail the external stimuli. Chief of these is infection, which may be successfully combatted by asepsis and antiseptics. Next in importance are foreign bodies. In our every-day surgical practice tampons, drains, and dressings are foreign bodies in the wound. From the standpoint of fighting infection and arresting hæmorrhage they have proved their value, but to the process of regeneration they are deleterious. Too little attention has been paid to the harmful effect of the tampon, particularly when its use is continued over a long period. It irritates the wound, prevents healing, and causes pain. In his own clinic the author has endeavored to establish the practice of doing without tamponade and drainage after incision in the usual suppurative surgical diseases. The number of completed observations is still small, but the results have been surprisingly good.

In severe tendovaginitis with œdema of the hand and forearm complicated by lymphangitis (six cases) tamponade was not employed following the usual incisions and the escape of the pus, the wound in most of the cases being merely covered with a moist dressing. The result was surprising. In two cases the wounds were healed and function in the fingers was excellent at the end of ten days. Abscesses and paronychia of the fingers and hands were treated in the same manner and with equal success. A smooth course and rapid healing were obtained also in severe advanced suppurative mastitis (four cases), and in phlegmons and carbuncles. In a number of cases of empyema and amputation stumps which had been under treatment elsewhere for months with thick rubber drainage tubes the wounds healed within one week after the drains were removed. The average length of healing was between two and three weeks.

The technique of the tamponless dressing is yet to be perfected. The application of the ordinary hydrophilic gauze, which adheres to the wound surface as it dries, is not sufficient. Moist dressings are better and oily dressings (petrolatum) are worth consideration. In abdominal surgery the harm of tamponade and drainage has long been recognized. The aim must always be complete closure of the abdominal cavity. Such closure may be effected more frequently than is as yet the case. Of late, the author closes the abdomen after cholecystec-

tomy. The stump of the cystic duct is covered with peritoneum and plastic surgery is done on the omentum. The experience of Spassokukozki and Hoberer in this regard indicates that closure of the abdominal cavity after removal of the cause of inflammation might be possible in suppurative peritonitis. The same principles may be applied to the treatment of bone cavities.

In the last section of the article the author discusses suitable media for the regeneration and restitution of tissue in large defects. The exceedingly interesting cases of Bier, in which he succeeded in obtaining true muscle regeneration in extravasated blood are cited. These experiences demonstrate that it is no longer necessary to regard the replacement of lost tissue by connective tissue as an absolutely unavoidable evil.

Animal experiments for the study of muscle regeneration have been begun in Schaack's clinic and the results will soon be reported. SCHACK (Z).

ROENTGENOLOGY AND RADIUM THERAPY

Terrien, F.: The X-Ray Treatment of Visual Disturbances Due to Tumors of the Hypophysis
(Le traitement radiothérapique des troubles visuels dus aux tumeurs de l'hypophyse). *Presse méd.*, Par., 1922, xxx, 429.

In 148 cases of hypophyseal tumors without acromegaly there were thirty-four cases of blindness, thirty-seven cases of bitemporal hemianopsia, two cases of homonymous hemianopsia, fifteen cases of optic neuritis, twenty-seven cases of atrophy of the optic nerve, and fifteen cases of papillary stasis. Twenty-seven per cent of all cases showed some ocular paralysis.

The diagnostic value of roentgenography in cases of hypophyseal tumors and the therapeutic value of the X-ray are now generally recognized. While it is admitted that perfect technique diminishes the still considerable dangers of hypophysectomy, the use of glandular extracts, mercury, and the X-rays should be tried first. The author has been able to collect ten cases of hypophyseal tumors which were greatly benefited by the X-rays (one of his own), especially as regards the visual disturbances. Carlotti quite recently reported four other cases. The greatest improvement occurs in the functional disturbance characterized by cephalalgia, diminution of visual acuity, and a change in the visual field. In the author's case the cure has persisted for nine years.

Two routes have been proposed to reach the hypophysis: the mouth and the cutaneous route. The mouth has the double advantage that it is the most direct route and presents a relatively slight thickness of tissue to be penetrated by the rays. The only solid obstructions here are the palatal vault, the mucosa of the rhinopharynx, and the sphenoid body. Beclère combines radiation in the temporal region with buccal radiation. A special X-ray outfit is necessary for this work.

Hypophyseal tumors are especially amenable to roentgenotherapy. Like all other treatments this will be the more beneficial the earlier it is applied. The degree of the lesion, however advanced, is never of itself a contra-indication. In the majority of the reported cases there was not only an arrest of the growth of the tumor with preservation of the visual field but often retrogression of the lesion. In certain amblyopic or amaurotic zones vision became better and often reached normal. On the other hand, healthy parts of the visual field became involved in some cases. The indications and contra-indications for roentgenotherapy of hypophyseal tumors should therefore be clearly limited.

Cases of tumor of the hypophysis may be divided into two classes according to their symptoms. In those of the first class the symptoms are local and due to compression in the hypophyseal region. If organotherapy fails, roentgenotherapy is the treatment of choice and is more successful the earlier it is applied. The second class of cases of hypophyseal tumors are those in which the manifestations are at a distance and of an acromegalic and trophic type. The X-rays may arrest the abnormal growth of the skeleton in these cases but cannot cause the retrogression of acquired lesions. Their employment is indicated only in the beginning and during the increase of the disease, that is to say, in the period of hyperplastic lesions and hyperfunctioning of the hypophysis. Their use is contra-indicated in the advanced period, the period of decline.

W. A. BRENNAN.

Carman, R. D.: Errors in the Roentgenological Diagnosis of Duodenal Ulcer. *J. Radiol.*, 1922, iii, 163.

Aside from various minor and indirect signs of duodenal ulcer, there are but two trustworthy indications of this lesion, deformity of the duodenal contour and the combination of retention with hyperperistalsis in a large but otherwise normal stomach. The errors in diagnosis fall into two groups, those of affirmation, when an ulcer is diagnosed but not found at operation, and those of negation, when an ulcer is not diagnosed but is found at operation.

Among the causes of affirmative error may be noted technical errors and difficulties, such as failure to fill the bulb completely, retraction of the abdominal wall, and the blending of the bulbar shadow with that of other portions of the duodenum or of adjacent concretions. Deformity of the bulb due to causes other than ulcer—such as reflex spasm, inflammatory processes in the right upper quadrant, extrinsic tumors, and lesions of the duodenum other than ulcer, such as benign tumors, duodenitis and diverticulum—may also be contributory causes of error.

The causes of negative error may be such technical faults as insufficient milliamperage, improper voltage, an unsuitable tube, or failure to examine

both roentgenoscopically and roentgenographically. Neglect of duodenal examination in cases of cardiospasm or ulcer of the stomach, unfavorable position of the duodenal bulb, and actual or apparent absence of bulbar deformity may also contribute to negative errors.

Alimentary errors. Free opening of the pylorus is an important factor in obtaining complete filling of the duodenum. The author avoids retardation of pyloric opening due to coarse particles of food by the use of a fluid medium for the opaque meal. An unusually capacious bulb may be difficult to fill, and occasionally the apprehensive patient may retract the abdominal wall so strongly that the initial outflow through the pylorus is scant and the stomach cannot be satisfactorily manipulated to assist in filling the duodenum. A positive diagnosis based on bulbar distortion is warranted only when there is constantly found a lesion whose location and appearance do not vary during the examination.

Spasm of the duodenum may be caused by cholecystitis, chronic appendicitis, and diseases of the pancreas, and may produce deformity similar to that seen in ulcer. Pericholecystitis and other inflammatory processes in the right upper quadrant may by adhesions, cause bulbar distortion which, when constant, is not to be distinguished from that produced by ulcer and may lead to errors in diagnosis. It must be remembered also that adhesions may be present which result from the perforation of an ulcer, and that the bulbar contour may appear normal in cases in which the first portion of the duodenum is embedded in adhesions.

Extrinsic tumors infringing on the bulbar contour are uncommon and are usually palpated during examination. Benign tumors within the bulb are very rare. Gastric lesions near the pylorus may be variously deceptive, an occasional prepyloric cancer or ulcer not visibly deforming the antrum giving rise, if obstructive, to gastric retention and hyperperistalsis.

Negative errors. An ulcer may easily escape recognition on the screen if attention is not paid to many technical details. The image must be clear, and the vision of the examiner must be adapted to the relative darkness. To secure a clear image the milliamperage and voltage must be appropriate, the focus of the tube must be as sharp as is consistent with reasonable endurance, the screen must be of the best quality, the patient must be close to the tube, and the diaphragm must be actively employed to narrow the field of observation.

The diagnosis of cardiospasm by means of the roentgen ray would seem sufficient in most cases, but in a few the condition is accompanied by duodenal ulcer. When a gastric ulcer is found, a careful search should be made for a duodenal ulcer, a frequently concomitant lesion, unless the gastric ulcer is of such character that perforation might result from manipulation.

The demonstration of a duodenal bulb of normal outline usually signifies the absence of ulcer, but a

few cases have been seen in which the duodenal contour was apparently undeformed but an ulcer was found at operation. The absence of deformity may be due to the absence of spasm or the minuteness of the ulcer.

In cases of ulcer located beyond the bulb, the distal deformity of the duodenum cannot be distinguished from that ordinarily produced by the valvula conniventes, and unless complicated by stenosis with its characteristic signs, the lesion is seldom discovered.

Cases illustrating the various types of lesions discussed are reported.

GEORGE H. JACKSON, JR., M.D.

Desjardins, A. U.: Radium and Roentgen Therapy in Malignancy — Indications, Contra-Indications, Limitations, and Recent Developments. *J. Radiol.*, 1922, III, 226.

Radiation treatment of malignancy is most efficient when radium is used internally and the roentgen ray externally.

The gamma rays of radium are more penetrating than the roentgen rays used at present time for therapeutic purposes. Experimentally, roentgen rays have been produced with wave lengths as short as some of the gamma rays, but as yet these have not been employed clinically. With the small dosages commonly used, the total radio-active energy delivered to a lesion or tissue beneath the surface is very small, constituting only an extremely small fraction of the total gamma radiation generated by a given quantity of radium. Moreover, we are still unable to deliver uniform radiation to a lesion of any extent on the surface and this difficulty is magnified many times when we are dealing with a deep lesion the extent of which cannot be outlined accurately. These factors determine in a very large measure the indications for the use of radium or roentgen rays.

The roentgen rays act with a more uniform intensity over a much wider field than the radium rays. Although their intensity decreases rapidly as they pass into the deeper tissue layers, a portion of this loss can be compensated by increasing the filtration, the focal distance, and the number of ports of entry. Therefore if we are dealing with an extensive superficial lesion or with a lesion, either superficial or deep, whose exact extent cannot be outlined fairly accurately, the roentgen ray is the agent of choice. Tumors with a tendency to metastatic dissemination by way of the lymphatics and growths in which metastasis is suspected or to be expected should be treated by the roentgen rays alone or combined with radium. Although the indications for the roentgen rays or radium are usually quite well defined, there are many cases in which both should be used together.

The entire involved area with its lymphatic drainage must receive a uniform lethal dose, and this dose must be delivered, as nearly as possible, during the first treatment—not necessarily at one seance, but as soon as the patient's condition and the degree

of the reaction will allow. To scatter a course of treatment over a period of weeks is to defeat the very purpose for which it is given. If involvement is limited and a cure may be reasonably expected, the aim of treatment must be to destroy the malignant elements by a single attack.

The importance of treating the lymphatic system draining the area of a malignant tumor cannot be over-emphasized. Untreated elements not uncommonly show signs of activity. Although this consideration might seem self-evident, the manifest lesions are often treated alone and in a scattered fashion and the lymphatic drainage system is overlooked. In fact, in most malignant conditions the lymphatic drainage system should be treated before the main lesion is attacked.

Radiation of a region after preliminary surgical amputation of the grossly malignant tissue has become a routine practice in many cases as in carcinoma of the breast. Although a sound technique may yield good results, it is doubtful if our hopes are really justified or will be realized. The rational procedure would seem to be for the surgeon to operate only after the involved part and its lymphatic drainage have been thoroughly radiated.

The surgeon wishes to know how long an interval should be allowed between radiation and operation. In carcinoma of the breast radiation sickness is usually either absent or slight; therefore operation may follow within a week. In carcinoma of the uterus, however, in which the radiation is administered by means of radium internally and by means of the roentgen ray externally, the interval should be from three to four weeks.

After radiation the tissues should be in comparatively good condition for operation, and the surgeon should not encounter any particular delay in the repair of the wound. Difficulties are not apt to be experienced in the various steps of the operation after a single course of treatment, especially if a proper interval was allowed before the operation. Pre-operative radiation should also tend to minimize the danger of tampering with a malignant lesion in order to obtain a specimen for diagnosis.

DAVID R. BOWEN, M.D.

Pfahler, G. E.: Cancer of the Lip Treated by Radiation or Combined with Electrocoagulation and Surgical Procedures. *J. Radiol.* 1922, iii, 213.

Thorough treatment of cancer of the lip must include radiation, whatever other form of treatment is used. Any fissure or crust formation on the lip which persists longer than four weeks should be looked upon with suspicion.

The diagnosis can usually be made from a carefully taken history, a study of the patient's habits, inspection, and palpation. The possibility that the condition is a primary luetic lesion must be borne in mind, but a negative Wassermann test or consultation with a competent dermatologist or syphilologist will help to exclude syphilis. A positive Wassermann test, however, does not necessarily

exclude cancer. There have been many failures in the treatment of cancer about the mouth due to prolonged treatment for syphilis causing neglect of the cancer treatment. In such cases the local lesion is probably engrafted upon a syphilitic base. Removal of a section of a lesion for diagnosis is inadvisable unless the disease can be immediately destroyed.

In Pfahler's private clinic ninety-seven cases of cancer of the lip have been treated. Seventy-two were primary, twenty recurrent, and five postoperative. Of the seventy-two patients with primary cancer, sixty-five recovered and have remained well from several months to eighteen years, two died of a continuation of the disease, and two have a recurrence. The result in two cases is unknown.

The recurrent cases are always more difficult. In the twenty recurrent cases treated, recovery resulted in only eight. The outcome in recurrent cases depends in part, at least, upon the nature of the cancer or the degree of its malignancy. Unless radiation causes prompt improvement it is apt to fail. Thorough radiation from the very beginning by the roentgen rays, and by radium when it can be combined to advantage, is most important.

Electrocoagulation consists in the coagulation of the diseased areas by means of the high-frequency current as it passes through the body from a point attached either to the Oudin current or to one pole of the d'Arsonval current. The Oudin current (unipolar) is used for small lesions, and the d'Arsonval current for larger lesions. If the d'Arsonval current is employed, one pole is attached to a pad or smooth metal electrode placed under the buttocks. The active electrode is a point. This current is not selective in its action as it destroys the tissues radiating outward from the point. Therefore it cannot be used when essential structures, such as important blood vessels or nerves, would be located in the line of its radiation. In the zone just beyond the zone of actual coagulation the heat will be sufficient to destroy cancer cells, but will not destroy the healthy tissue. Pfahler believes that such destruction will be followed by more prompt and more satisfactory results than radiation alone.

In advanced primary cases a thorough trial should first be made of radium. If this is skillfully applied good results may usually be expected. In some cases, however, only temporary improvement occurs, a stage then being reached in which the disease remains at a standstill or progresses in spite of the radiation. At this stage, complete and thorough local destruction or complete surgical excision is probably the only procedure possible.

DAVID R. BOWEN, M.D.

Bumpus, H. C., Jr.: Radium in Cancer of the Prostate: A Report of 217 Cases. *J. Am. M. Ass.* 1922, lxxviii, 1374.

The enthusiastic reports of results from the treatment of cancer of the prostate with radium indicate the need of careful analyses of large series

of cases in which the treatment has been carried out for several years. Cases in which metastases are present are unsuited for radium treatment. A reduced renal function due to obstruction and a greatly lowered vitality also contra-indicate its use. Excluding these cases, it will be found that radium therapy is indicated in considerably less than half of those examined.

During the last seven years, 217 cases of carcinoma of the prostate have been treated with radium at the Mayo Clinic. The aim was to give sufficient radiation to all parts of the tumor at a single exposure to cause disintegration of the nuclei of the tumor cells so that they would lose their power of reproduction. A dosage sufficient to cause this result rather than destruction of tissue stimulates fibrosis and hyalinization, thus walling in the altered cancer cells, compressing them into distorted and flattened shapes, and preventing their further spread.

According to the method employed, the patients were divided into three groups: Group 1, patients treated through the rectum and through the urethra; Group 2, patients treated by the insertion of needles into the growth through the perineum; Group 3, patients treated by a combination of these two methods. Group 1 included fifty of the earliest cases. The radium used was in the form of a 50- or 100-mg. capsule. It was applied in the rectum with the aid of a No. 10 soft rubber rectal bougie. For urethral work a rubber-covered brass receptacle attached to a piece of soft solder was found satisfactory. The position of the capsule was changed at intervals and the rectal and urethral applications were alternated. The rectal dosage averaged 1,482 mg.-hrs., and the urethral, 217 mg.-hrs. Experience demonstrated that the rectal dosage was entirely too large and that 400 to 600 mg.-hrs. was the maximum for safety. Forty of the fifty patients regarding whom complete records were obtained lived an average of seventeen months after the treatment and an average of forty-five months after the onset of symptoms. Because of the proctitis produced by overdosage the method described was discontinued and the method of Barringer of the Memorial Hospital, New York, was adopted, viz., the direct application of the radium to the substance of the gland by means of needles.

In Group 2 there were thirty-seven patients. The average dosage was approximately 1,000 mg.-hrs. Completed records of twenty-seven patients show that they lived an average of fourteen months after the treatment, and that the duration of the disease from the onset was forty-five months, slightly longer than the average for patients not treated. These poor results are explained by the fact that when the rectal and urethral applications were abandoned the periphery of the growth, where the greatest cell activity occurs, was not thoroughly irradiated. The needles were allowed to remain long enough in one location to destroy the malignant tissue immediately around them, but the tissue beyond was only slightly affected.

On the supposition that the poor results obtained from the use of rectal and urethral exposures alone, or the use of needles alone, were attributable to the fact that not all of the cancer cells were reached by the radium emanations, the last 127 patients were treated by a combination of the two methods. The completed records of eighty-three show that the average dose of radium was 1,966.45 mg.-hrs. Sixty patients lived an average of eleven and twenty-five hundredths months after the treatment. The duration of the disease in those who died was approximately the duration of the disease in untreated patients. Twenty-three are alive, the duration of the disease having increased to forty-seven and thirty-three hundredths months, and the time since their last treatment having increased to twenty months, an extension of approximately one year each.

The average duration of life in 241 untreated cases of cancer of the prostate observed and recorded was ten months after examination, and the total duration of the disease was approximately thirty-two months from the date of the first symptoms. Comparing these with similar data of cases treated with radium shows that there is sufficient prolongation of life to warrant the use of radium in selected cases.

ADOLPH HARTUNG, M.D.

LEGAL MEDICINE

Abnormal and Unknown Conditions and Representations of Good Health. *Eastern District Price Dye Works, Inc. vs. Travelers Ins. Co. (N. Y.), 190 N. Y. Supp., p. 822.*

This was an action on a policy of insurance for \$25,000 on the life of a Mrs. Klein, payable to the plaintiff corporation of which she was president. Her application was dated July 14, and the policy was dated and issued September 4. November 19, she was admitted to a hospital where, following an operation, she died, November 26. A bill of particulars stated that the respects wherein the assured's representations were false in that she was not in good health were that she was said to have had chronic intestinal obstruction with a disease condition causing adhesions.

The evidence showed that she was 54 years of age and, until a few days before entering the hospital, had been engaged in active business. The intern who took her history gave as the substance of her statement that three years previous to that time she first noticed a mass the size of a hazelnut protruding from the vagina. This mass caused no pain or discomfort and no urinary or rectal symptoms. The condition had remained practically unchanged, but three weeks previously a sensation of pressure on the bladder and rectum was suddenly experienced which caused frequency of micturition and painful defecation. The symptoms were not very severe. The history revealed also that the patient had had two children and no miscarriages. A perineal tear which occurred thirty years before

had never been repaired. The patient's bowels were in good condition and her appetite was excellent. There was no nocturia or polyuria. The surgeon, discovering a congenital abnormal condition of the intestines of a type which he had never seen before in twenty-six or twenty-seven years of practice, passed beyond the minor operation for which the patient had come to the hospital and performed a serious major operation to correct or at least to alter this condition. The resulting shock caused death.

The patient went to the hospital for a minor operation for perineal laceration caused by childbirth thirty years previously which, up to the time when the application for the policy was made, had no appreciable effect on her comfort, well-being, or general health. The excuse for the major operation which resulted fatally was that one of the physicians present thought that the tissue appeared malignant, but on subsequent examination found it to be normal. Whether this condition was such as to render false the representations of the insured that she was in a sound condition mentally and physically, had never had any bodily or mental infirmity or deformity, and had not been disabled, was a question of fact when the purpose for which the representations were made was taken into consideration, namely, to induce the issuance of a life insurance policy. Certainly it could not be said as a matter of law that such representations were false. Moreover, even if they were false, they were not fraudulent.

Because the question of the falsity of the representations was a question of fact for the jury and the court could not dismiss the plaintiff's complaint by ruling as a matter of law that the assured was not in good health when the first premium was paid, a judgment dismissing the complaint, which was rendered by the court as a matter of law, was reversed and a new trial granted.

J. A. CASTAGNINO.

Breaking of Needle and Not Advising Seeing an Expert. *Benson vs. Dean* (N. Y.), 113, N.E.R., p. 145.

In March, 1916, the defendant, with the assistance of another physician who gave the anæsthetic, and of a specialist in general surgery, operated on the plaintiff, who had been suffering with rectal ulcers. While sewing up an incision, the specialist's needle broke. As the needle could not be found with the probe, it was left because the plaintiff was not taking the anæsthetic well and haste was necessary.

The defendant did not tell the plaintiff about the needle, but continued to treat him until the fall of 1917. In January, 1917, the defendant burned some small ulcers with nitrate of silver. He then prescribed an irrigation treatment which was extremely painful, and when he inserted his finger with a rubber covering and touched a certain spot, or the irrigating tube touched this spot, the plaintiff

experienced severe pain. A lump finally formed in the wall of the rectum, and the defendant stated that another operation would be necessary. The plaintiff then went to a rectal specialist, who treated him, opening an abscess at the tender spot and removing therefrom the broken needle. After several weeks the plaintiff was cured of all discharge and pain. The plaintiff recovered a judgment for \$2,634.50 damages against the defendant but as he called no medical experts to testify as to what constituted proper treatment the judgment was reversed and a new trial granted.

A physician is bound only to have and to exercise competent skill in treating a patient. The results may be of such a character as to warrant the inference of want of care from the testimony of laymen or in the light of the knowledge and experience of the jurors themselves. The localized pain in this case might have suggested the cause of the patient's suffering to a careful physician. A long continuance thereof, without relief under the ministrations of the general practitioner, might properly lead him to reveal to his patient the presence of the broken needle and suggest recourse to a specialist in rectal disorders. The defendant did not diagnose the trouble correctly and did not advise his patient to resort for help to others of wider experience. The jury might properly find that he was guilty of malpractice in this regard. The defendant's fault seems to have been the unworthy and unskillful attempt to cover up the accident rather than the accident itself.

It was error to instruct the jury that the mere breaking of the needle was not necessarily negligence, yet might be some evidence of negligence. Common sense suggests that the condition discovered by the rectal specialist was incompatible with successful surgery and medical treatment. However, when the evidence of the defendant's surgeons came into the case with a reasonable explanation showing what may happen when the proper degree of care and skill is exercised, the possible inference of negligence from the breaking of the needle alone was driven out and the jury should have been so instructed. The rule of *res ipsa loquitur* placed on the defendant the burden of going on with the case, but in the absence of medical evidence to the contrary, it must be assumed on this appeal that the breaking of the needle was not due to negligence. An instruction too broad stated that if, under the circumstances, a reasonably careful and skillful general practitioner, such as the defendant, would have suggested calling into consultation a rectal specialist, the defendant was negligent for failing to do so. The evidence did not suggest that such a specialist should have been called in for the operation, but a jury might say that at some time in the subsequent treatment the defendant should have sought, or at least suggested, counsel when he failed to give the plaintiff any substantial relief from the extreme agony he suffered.

J. A. CASTAGNINO.

Physician Not "Immediately" Disabled by Accident. *Hewitt vs. Southern Motor Auto. Assn. of America* (Mo.), 234 S. W. 2d, p. 513.

In November, 1913, while driving through the woods, the plaintiff was struck over the right eye by the limb of a tree, the blow rendering the eye sore. On the following day, while attempting to ford a stream, he was thrown into the water, an accident which was followed by a cold and a severe earache with swelling and an abscess in the ear. On February 4, 1916, some dust entered his left eye and he then discovered that he could not see well with his right eye. He continued the practice of medicine for from two to four days longer but during the rest of February was unable. He testified, to attend to about 3 or 6 per cent of his cases, and in March was unable to attend to a majority of his cases. On April 1, 1917, he ceased practicing entirely because of defective vision. No claim of disability was made until February 6, 1916.

The plaintiff's insurance policy provided that the benefit was to be paid only in case the insured should be immediately, totally, and continuously disabled solely as a result of an accident. The word "immediately" was inserted in the contract of insurance to fix the time when the disability must occur. The question which arose in this suit was whether a man who was able to continue the practice of medicine as usual for a period of two months and a half following an accident was immediately or totally disabled. The court held that under the evidence and according to a number of authorities, the plaintiff's case was clearly excluded from the provisions of the policy. J. A. CASTAGNINO.

Evidence of Malpractice in Pregnancy Case Sufficient to Go to Jury. *Kooney vs. Smith et al* (Kans.), 202 Pac. R. p. 201.

The plaintiff introduced evidence which tended to prove that she was pregnant and in ill health and had consulted one of the defendants, a local physician, on a number of occasions. He first informed the plaintiff that she had a tumor in the cervix of the uterus, and later, after the plaintiff had informed him she was pregnant, stated that her condition was not due to natural pregnancy, and that if she was pregnant, the fetus was in the fallopian tube and an operation for its removal was necessary to save her life. He requested her to go with him to the other defendant for a roentgen-ray examination.

The other defendant made a digital examination and stated that a roentgen-ray examination was unnecessary; that the ailment was pregnancy outside of the uterus and that immediate operation was necessary. No roentgen-ray examination was made.

A few days later operation performed at a hospital revealed the fetus in the uterus and not in the fallopian tube. The incision was closed and in a short time the plaintiff returned to her home. Ultimately she gave birth to a normal, healthy child. After the operation the defendants reported to her that they had discovered a number of tumors

in and about the uterus, and that after the birth of the child they must be removed. When the child was born, a hernia developed in the incision. Several months later the plaintiff returned to the hospital and was operated on by another surgeon for the reduction of the hernia. He made an incision, examined the abdominal viscera, and found that the fallopian tubes and the appendix were in bad condition. They, together with the ovaries, were removed by him. He discovered no tumors about the uterus, but found scars and adhesions on the omentum, some of which might be called tumors.

The defendants conceded that if they made a wrong diagnosis, they did not operate on the basis of such a diagnosis. However, so far as the hazy evidence of the plaintiff threw any light on the subject, it appeared that they made an exploratory operation on account of the seriousness of the plaintiff's condition.

At the trial, the court sustained a demurrer of the defendants to the plaintiff's evidence. That judgment was reversed and a new trial directed. The court stated that the defendants made a serious mistake in their diagnosis and the evidence tended to show that they were negligent in not making a roentgen-ray examination. The demurrer should have been overruled and the evidence should have been submitted to the jury.

It is the rule in Kansas that negligence of a physician or surgeon must be proved by expert evidence. That rule, however, was satisfied by the testimony of a physician that he thought a six months' fetus would show a shadow on a roentgenogram; that if he diagnosed a case by abdominal palpation and felt positive, without a roentgenogram, that it was a serious case demanding immediate surgical treatment, he wouldn't bother with a roentgenogram; that while there are pregnancies in which unusual, extraordinary symptoms appear which are difficult to diagnose, it is not difficult to ascertain whether the condition is serious; and that an exploratory operation was not justified if the case was so clear and the diagnosis so plain that, to use the language of the man diagnosing it, a "blind physician could tell what was the matter." J. A. CASTAGNINO.

Not Liable for Using Roentgen-Ray Static Machine. *Street vs. Hodgson* (Mich.), 113 S. E. 2d, p. 27.

The defendant physician was charged with negligence in the use of a roentgen-ray machine in treating the left leg of a patient for eczema. The burden of proof rested on the plaintiff to establish by preponderating evidence a want of ordinary care and skill in the treatment. From the mere fact that the leg was burned the jury could not infer that the defendant failed to treat the patient with ordinary care and skill. The court stated that in undertaking the treatment of a case by the roentgen-ray from a static machine, a physician cannot be held to insure a good result or to benefit the patient. If, as stated, the patient suffered from chronic squamous eczema and was treated for several years by numerous phy-

sicians, making little or no improvement, and was then treated by another physician with the roentgen-ray produced by a transformer machine, and subsequently developed pemphigus and died, and if the jury could not find from a preponderance of the evidence which of said diseases or treatment caused the injury complained of, and the minds of the jurors were in equipoise on that question, the verdict must be for the defendant.

As it was a question of the safety of the machine rather than of its efficiency, and as there was no testimony that it was dangerous when properly used, but, on the contrary, all the experts testified that it was safe when used with proper safety devices, the defendant was not required to submit to the jury any issue involved in the exercise of care and knowledge in the selection of the machine. The instruction that the jury could not infer negligence from the fact alone that there was a burn, still left the jury entirely free to say whether, in its opinion, it was negligence to use the static machine, as the defendant did, without a meter and without protecting the leg, and whether the burn, assuming there was a burn, was due to the failure to use a meter and protection for the leg.

J. A. CASTAGNINO.

Physician's Report Not Enough to Sustain an Award. *Stimul vs. Jewett & Co., et al. (N. Y.), 190 N. Y., Supp., p. 889.*

When the last hearing in this case was had before the commission in proceedings under the Workmen's Compensation Law, the commission announced that it would ask the claimant to appear before a physician for examination and would continue the case. About a month thereafter the physician made a report to the commission and it was evident that his report formed the basis of the determination that there was a loss of the use of one-third of the hand. Apparently the report was not submitted at any hearing of which the employer and the insurance company or carrier were notified. The physician did not appear for examination and there was no opportunity to cross-examine him. The award therefore stood on the physician's unsworn statement which was received outside of any regular hearing. The law contemplates that the employer and the insurance carrier shall be notified of the hearing and participate therein. Under the circumstances the non-receipt of this report was prejudicial to the employer and the insurance carrier and called for a reversal of the award.

J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Cullen, T. S.: Uterine Hemorrhage. *J. Am. M. Ass.*, 1927, LXXIII, 1392.

The various conditions causing uterine hemorrhage fall into two main groups: (1) those dependent on recent pregnancy, and (2) those independent of recent pregnancy.

Uterine hemorrhage dependent on recent pregnancy occurs with: (1) premature separation of the placenta; (2) retention of membranes; (3) hydatidiform mole; (4) chorioepithelioma; (5) tubal pregnancy; and (6) pregnancy in one horn of a bicornate uterus.

Uterine hemorrhage occurring independently of recent pregnancy is of the following types: (1) that due to constitutional conditions; (2) that due to benign changes in the mucosa of the cervix and the body of the uterus; (3) that due to malignant changes in the mucosa of the cervix and the body of the uterus; (4) that due to the presence of uterine tumors; and (5) that due to disease of the adnexa.

EDWARD L. CORNELL, M.D.

Miller, C. J.: Radium Treatment of Myoma of the Uterus and Myopathic Bleeding: Final Results in 183 Cases. *Surg., Gynec. & Obst.*, 1922, XLV, 193.

Although operative procedures for myoma of the uterus and hemorrhage of myopathic origin are generally successful, the author believes that in properly selected cases treatment with radium offers with greater safety results which are equally permanent and greater preservation of physiological function. To prove this contention he reports the final results obtained in 183 cases treated with radium and observed over a period of seven years.

To controvert the inference of over-enthusiasm, he states that about an equal number of cases were treated surgically during the same period of time. The limitations of radiation are clearly recognized. In the case of young women who present definite growths causing excessive bleeding, or submucous growths, and in cases in which malignancy of the fundus of the uterus is suggested, conservative surgery is decidedly less radical as radiation usually produces a more or less permanent amenorrhoea. If this fails, radiation may still be resorted to with the assurance of success. Massive growths should be removed surgically unless there are definite contra-indications. Even in these cases, however, radium treatment may be a valuable adjunct as a preliminary measure to control the hemorrhage and render the patient a safer operative risk. Chronic pelvic inflammation is a distinct contra-indication to the use of radiation.

Preliminary curettage should precede the application of radium in order to permit a careful bimanual examination under anesthesia, to eliminate small polyp, and to provide for a microscopic examination of the uterine scrapings. The radium is introduced into the cavity of the uterus screened by brass and rubber or a celluloid capsule, and is left *in situ* from three to twenty-four hours according to the indications. In the treatment of myomata in women under 35 years of age the average time of exposure is twelve hours. In women beyond this age, in whom it is not so important to preserve menstruation, it is twenty-four hours. As a rule, 50 mgm. of the radium element are employed. This dosage causes permanent cessation of menstruation in 94 per cent of the cases of women over 40 years of age. At present the author believes that one application is sufficient, and that subsequent exposures should be given only as indications develop.

One hundred and seven of the 183 cases of this series presented myomata. The tumors ranged in size from small growths detected during the course of diagnostic curettage to ascertain the cause of bleeding to massive growths extending above the umbilicus. Only a few of the latter group were treated, and practically all of them presented contra-indications to operation. The ideal type for radium treatment is the small or moderate-sized interstitial myoma. The primary result was uniformly prompt; recession in the size of the growth, while variable, was sure. The diminution was usually more than 50 per cent. Often the growth disappeared entirely. The best results were obtained in women presenting a history of severe menorrhagia. One hundred and two of the 107 patients reported complete relief from hemorrhage within five months after the radiation. Pain when present usually did not disappear even after the bleeding was controlled and shrinkage had occurred.

Seventy-six of the 183 cases were instances of myopathic hemorrhage such as are commonly classified as cases of chronic metritis, hyperplasia, fibrosis, uterine insufficiency, etc., conditions most frequent in women approaching the menopause. In this type, radium proved to be more nearly the ideal specific than any other therapeutic agent. Formerly, hysterectomy was the only satisfactory method of dealing with these conditions. At present it may be stated without exception that the surgeon who advises hysterectomy in uncomplicated cases of this group when radium is available is not acting in the best interests of his patient.

When full dosage was used to control bleeding in women over 40 years of age, immediate cessation of menstruation followed in 20 per cent of the cases. Sixty per cent menstruated once, 15 per cent

menstruated irregularly, and the rest reported no relief and have since returned for a second treatment. The second treatment was successful in all but three instances, and two of these three patients were relieved by a third exposure.

This brief review of cases extending over a period of seven years appears to warrant the conclusion that a large percentage of the cases of myoma of the uterus formerly subjected to operation can be permanently and safely relieved by radium, and that practically all cases of uncomplicated essential hæmorrhage can be cured by means of radium.

ADOLPH HARTUNG, M.D.

Glensacke, A.: The End-Results Following Operative and Irradiation Treatment of Carcinoma of the Uterus and Vagina (Die Dauerresultate nach operativer und Strahlenbehandlung des Uterus- und Scheidencarcinoms). *Arch. f. Gynaek.*, 1925, CXX, 435.

The author collected the carcinoma material of the Kieler University gynecological clinic for ten years. There were 798 cases, of which 638 were cases of uterine cancer. Of the latter, 371 were under observation for at least five years, and of these, 103 (27.76 per cent) are considered permanently cured. Most of these cancers were cervical carcinomata, and of these 247 (70.6 per cent) were operable. Two hundred and forty-three cases were operated upon. Permanent results were obtained in eighty-six (35.4 per cent). Two hundred and twenty-four cases were operated on by the abdominal route, results being obtained in seventy-five (33.5 per cent). The vaginal total extirpation was always limited considerably in favor of the abdominal as experience has shown that, at most, only 10 per cent of the cases remain permanently cured. As modern radiotherapy gives almost the same results as the abdominal radical operation, the vaginal total extirpation was finally abandoned entirely. Every case which for any reason is no longer suitable for the abdominal radical operation is referred for roentgen or radium therapy. Of 224 patients treated by the Wertheim radical operation, forty-four (19.6 per cent) died primarily, ninety-three (41.5 per cent) died from recurrences, and 5.4 per cent were lost track of or died from intercurrent diseases.

A prophylactic postoperative roentgen treatment is added to the operation as a matter of routine. The period of observation in regard to the effect of this postoperative radiation is still short, but in none of the cases so treated has the condition become worse.

On the basis of this experience it is believed at the Kieler gynecological clinic that all operable cases should be operated upon and then treated with a full carcinoma dose of the roentgen rays, and those not operable, those regarded as difficult cases for operation, and those which show a special contra-indication to operation should be treated with combined roentgen and radium therapy.

In the cases of carcinoma of the body of the uterus the total extirpation was effected by the vaginal route in twelve, by the abdominal route in seven, and by the Wertheim operation in two cases. Ten patients are permanently cured, two died primarily, six died from recurrences, two died from unknown causes two and four years after the operation, and one has disappeared. The total extirpation by the vaginal route resulted in seven permanent cures, whereas both of the patients subjected to the Wertheim operation died soon after the operation from recurrence.

Of twenty-three cases of vaginal carcinoma only one can be considered as permanently cured.

BODE (Z).

ADNEXAL AND PERI-UTERINE CONDITIONS

Mezer, J. H.: Autografting of the Ovary. *Boston M. & S. J.*, 1922, CLXXXVI, 604.

In young women, removal of the ovaries is followed by nervous symptoms which are apt to be severe and persist for a very long time.

In a large percentage of these cases, autografting will ward off the nervous symptoms entirely or modify them to a great extent. When, following removal of the tubes, the ovary is wholly or in part left with its normal supports, grafted into the uterus, or buried in the broad ligaments or underneath the parietal peritoneum, pain often develops, or changes necessitating a second operation may take place in the graft.

When the ovary in whole or in part is buried under the skin just within the anterior-superior spine of the ileum it is placed where it can be easily observed and reached if any disturbance occurs. After a while it becomes active, somewhat enlarged, and painful, the symptoms of the menopause subside, and menstruation re-appears. Menstruation is always irregular. If the re-appearance of menstruation is due to a small piece of ovary left in the abdomen, it will be noted within two months after the operation, a period of time too short for the appearance of menstruation from a graft.

If menstruation does not appear, the symptoms of the menopause will develop, a fact indicating that it is the suppression of menstruation which causes the symptoms of the change of life.

E. L. CORNELL, M.D.

Estes, W. E.: Implantation of a Part of an Ovary into a Horn of the Uterus in Order to Preserve the Functions of Ovulation and Menstruation. *Med. Times*, 1922, 1, 132.

It seems settled that if a portion of functioning ovarian stroma is retained in the abdominal cavity menstruation continues, vigor of health and libido are retained, and the nervous ailments following sudden loss of the ovaries in youth are obviated. If the functioning ovarian stroma is implanted directly over the inner opening of one or both fallopian tubes in the horn or horns of the uterus, conditions

possible for fertilization and pregnancy are added to the preservation of the ovarian hormones.

Of nineteen women operated on in this manner more than six years ago every one escaped the trying neurotic symptoms which usually occur in a young woman after the sudden loss of both ovaries, and all but three have continued to menstruate. Of two who became pregnant, one aborted and the other went to full term and bore a normal child. In two cases small cysts developed in the implanted ovarian stroma.

The operation is adapted for women between the ages of 15 and 45 years who for any reason have complete stenosis or destruction of the fallopian tubes, whose ovaries are not diseased, and whose uterus is in such condition that it may be left in place. In one case an ovary was transplanted into the stump remaining after a subtotal hysterectomy and though menstruation did not recur the phenomena of ovulation went on regularly.

The technique of the operation may be described briefly as follows:

After a preliminary curettage and packing of the uterus with iodoform gauze, the abdomen is opened and the tubes are completely excised from the horns of the uterus by a free oval incision extending to the mucous membrane. The ovaries are liberated and freed from any diseased portion of tissue. If practicable, the ovarian ligament with its small artery is preserved. The remaining ovarian stroma is cut so that it will fit into the oval concavity left in the horn of the uterus and is fixed in place with running catgut sutures. The stumps of the round and broad ligaments are then brought into apposition with the sides of the uterus in such a way that the implanted segment of ovary is entirely covered by the serous membrane of these ligaments. Drainage, when it is necessary, is obtained through the vagina.

Ovarian function is usually established within two months of the operation. H. W. Fink, M.D.

Roeder, C. A.: The Surgery of Non-Hyperplastic Ovarian Cysts. *J. Am. M. Ass.*, 1922, lxxviii, 1452.

Not infrequently the only remaining ovary becomes cystic. When in such cases the cyst wall is large and thin and conservation of the ovary is desired, the upper third of the cyst is cleanly removed and the remaining portion is curled back twice and held by a continuous mattress suture to keep the cyst cavity permanently open. The author believes this procedure is better than resecting the ovary and leaving the stump.

In cases of small, multiple inflammatory cysts of both ovaries the most diseased ovary is removed. The other is then split to the hilt, with care not to injure the vessels, its cysts are cleanly removed, and the open raw surfaces are sewed to the posterior surface of the broad ligament or the uterus by small continuous fine catgut sutures. A few mattress sutures are placed in the central portions.

R. E. CHURCH, M.D.

Rongy, A. J., and Rosenfeld, S. S.: Transuterine Insufflation, a Diagnostic Aid in Sterility. *Am. J. Obs. & Gynec.*, 1921, vii, 426.

In the two years preceding August 1, 1921, the authors were consulted by 421 patients for the treatment of sterility. Sterility due to the male is on the decrease. The authors believe that the educational campaigns conducted by the medical profession and various public health agencies are just now beginning to produce results. In previous years sterility was due to the male in fully 35 per cent of the cases while today the male is responsible in not more than 11 per cent.

The present tendency of the profession in general and also of some specialists to ascribe sterility to stenosis of the cervical os is entirely fallacious in fully 95 per cent of the cases. Not only do operations on the cervix fail to cure, but in a number of instances they cause mild and insidious infections which finally involve the tubes and render the patient permanently sterile. Dilatation and curettage as practiced by the general practitioner, the use of the stem pessary, and cutting operations on the cervix as practiced by specialists have cured very few cases. The truth of this assertion is proved by the fact that over 300 patients seen by the authors had had cervical operations ranging in number from one to six.

Teachers in medical colleges should point out to the future members of the profession the erroneous conception heretofore held regarding the medical aspect of sterility. In this way only will be eliminated useless and obsolete operations which in a great many instances are causes of permanent sterility. In the few instances in which pregnancy followed such procedures the patients would have become pregnant eventually even if they were not operated upon. Operations on the cervical canal without definite knowledge of the condition of the fallopian tubes are obviously incomplete procedures.

In the authors' series of cases of pneumoperitoneum 58 per cent were positive, i.e., air was present in the abdominal cavity, and 42 per cent were negative, i.e., no air was present in the abdominal cavity.

This method of examination must not be used in the presence of acute infections of the vagina or pelvic organs or in the presence of chronic infections if the patient complains of pain. It should not be performed at the time when the menstrual period is about to appear. Patients who have heart disease, and especially those in whom myocardial changes are suspected, should not be subjected to this examination because the raising of the diaphragm by the gas may seriously embarrass the heart action.

In the series of cases reviewed the only complications were:

1. A severe syncope in a patient who was quite obese. Apparently, as soon as the gas lifted the diaphragm, there was interference with the heart action. The patient became cyanosed and the pulse barely perceptible. She rapidly rallied, however,

and it was possible to continue the fluoroscopic examination.

2. Less severe syncope in another case.

3. An acute inflammatory condition in the left fornix which lasted about two weeks and subsided under palliative treatment.

Transuterine insufflation should be employed in every case in which the cause of the sterility is doubtful. It is important that the patency of the tubes be established before any form of treatment is undertaken. The procedure is of especial value in the cases of patients who have had an infection of one fallopian tube and those who have had one tube removed.

Sterile women with fibroid tumors of the uterus should be examined in order to ascertain whether the continuity of the genital tract is interrupted. If the tubes are found to be occluded, there should be no hesitancy in advising removal of the tumor as pregnancy in such cases is almost impossible.

E. L. CORNELL, M.D.

EXTERNAL GENITALIA

Stanca, C.: Puerperal Atresia of the Vagina; Coitus-Dilatation of the Urethra (Atresia vaginae puerperalis; dilatatio urethrae e coitu). *Zentralbl. f. Gynæk.*, 1921, xlv, 1788.

The author reports a case of atresia of the vagina after labor lasting for three days. The adhesion of the vaginal walls was due evidently to necrosis caused by pressure during the labor. Inspection showed that the urethra was greatly dilated (coitus dilatation) and that the opening of the vagina was as small as a pin-head. A severe attack of pain occurred every three weeks. Examination during one of these attacks, which lasted six days, revealed swelling of the uterus (hæmatometra) which was followed by reduction. In spite of the intense pain associated with hiccough, vomiting, and motor disturbances, the patient could not be persuaded to submit to operation. Incontinence of the bladder was not present.

VORSCHUTZ (Z).

MISCELLANEOUS

Novak, E.: Pseudomyxoma Peritonei. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 182.

The peritoneal surface and the body cavity may be locally or generally covered with a gelatinous material. The peritoneum is injected and roughened and may be studded with small white bodies resembling glandular metastatic masses and varying in size from that of a pinhead to that of a pea.

The author reviews the literature beginning with Werth who described the condition in 1884.

The exact cause of pseudomyxoma peritonei is still unexplained. Some observers contend that it is leakage or rupture of a pseudo-mucinous appendix in the male, or of a pseudo-mucinous appendix or ovary in the female. Others maintain that the condition arises from retroperitoneal tissues.

Some writers state that very little peritoneal reaction results when the jelly-like masses come from the ovary, though cystic metastases may be found, and that when the appendix is the source, the peritoneum is roughened by the organized foreign and endothelial outgrowths and cystic metastases are absent. Other observers have found metastases also in the latter type of cases.

An attempt has been made to ascribe the difference in peritoneal reaction to chemical differences between the ovarian and the appendiceal secretions. Trotter and others maintain that the gelatinous material in the appendix contains mucin, while in the ovarian cases it contains pseudomucin. The literature bears out the chemical analysis of pseudomucin in the ovary, but the appendix contents vary from mucin to colloid material.

The author maintains that when both the ovary and the appendix are undergoing pseudo-myxomatous degeneration the ovary is chiefly responsible for the peritoneal reaction. If the condition exists in either the ovary or the appendix, rupture in one or the other will aid in the diagnosis, but if neither is ruptured chemical examination of the exudate and microscopic examination of the peritoneum are of great value.

The author reports two cases of pseudomyxoma peritonei from the gynecological department of the Johns Hopkins Hospital in which the peritoneal involvement was due to cystic ovarian degeneration.

S. J. HARBRECHT, M.D.

Dembskaja, W. E.: An Attempt to Apply Ionotherapy in Gynecological Diseases (Ein Versuch, die Ionotherapie bei gynäkologischen Erkrankungen anzuwenden). *Nautschnaja Med.*, 1920, 806.

If a galvanic current is made to pass through a solution of potassium iodide, the molecules are reduced to ions. During the galvanization of the inflammatory foci of the lesser pelvis, the iodine ions penetrate the affected structures and act on them therapeutically. One electrode, surrounded by a cotton tampon saturated with a 5 per cent solution of potassium iodide, is introduced into the vagina. A current of 50 to 100 ma. is passed for twenty minutes. In order to control the penetration of the iodine, urinalyses were done. These showed the presence of 0.01 mg. of iodine in 1 liter of urine after the electrization.

Twenty-six cases were subjected to ionotherapy, including seventeen cases of salpingo-oophoritis, two cases of inflammation in the postoperative stump, three cases of tertiary syphilis, one case of ovarian neuralgia, and three cases of metritis. The treatment was continued for three months, and the results were good.

SCHACK (Z).

Wagner, J.: The Removal of a Foreign Body of Unusual Length After Eight Years. *Internat. J. Surg.*, 1922, xxxv, 157.

A woman, aged 26 years, came for relief of excruciating pain in the left buttock which had been

present for the past week. For the last year she had noticed a swelling in this region which was painful at times, but relief came when it broke and discharged for a limited period. After two months it recurred with similar results, but the pain did not disappear with rupture of the mass, although the discharge was fairly free. Sitting or lying on the left side was impossible and walking was very painful.

The patient stated that eight years previously, when one of her menstrual periods was overdue, she went to her physician who did something, but she does not know what. Her menses were always regular after that until three years ago when they became very irregular, the flow was almost constant, and there was very severe pain in the left iliac region. During a period of a year and a half she lost 15 lbs. and became very weak and anemic. Suddenly, without any cause, the pain in the side disappeared and the menses again became regular. The pain in the left buttock followed shortly by the mass described developed suddenly after a period of several months when she was free from symptoms.

Examination revealed a discharging sinus in the

left ischiorectal fossa with a small opening about 1 in. to the left of the anal margin. The cavity was not probed, but a rectal examination failed to reveal any fistula.

On enlargement of the opening in the sinus at operation the torn end of a No. 16 F. soft rubber catheter appeared in the wound. This was extracted and found to measure $3\frac{1}{4}$ in. The cavity was then widely opened but an exploring finger failed to discover anything but scar tissue. The latter extended upward toward the abdominal cavity. The rectum was thoroughly explored, but there was no sign of any opening or connection between it and the fistulous tract. A vaginal examination disclosed a mass of scar tissue running from the posterior cul-de-sac, about the level of the internal os, toward the fistulous tract. With one finger in the vagina and the other in the fistula a direct connection between the fistula and the vagina was found but no opening; only scar tissue was present.

The usual operative and postoperative procedures were followed by uneventful recovery.

EDWARD L. CORNELL, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Leopold, S. S., and Behrend, M.: Nephrotomy and Decapsulation for Anuria in a Case of Single Kidney; Recovery. *Surg., Gynec. & Obst.*, 1922, xxxiv, 677.

References in medical literature to nephrotomy and decapsulation in cases of single kidney are few. The author believes the case he reports is unique in that right nephrectomy had been performed four years prior to nephrotomy and decapsulation on the left kidney.

The patient was a white male, 17 years of age.

A purulent urethritis acquired in some unknown manner at the age 3 years and neglected resulted in the formation of a urethral stricture which manifested itself symptomatically at the age of 13 years. Operation for impermeable stricture at the age of 17 was followed in six weeks by nephrectomy on the right side for hydropyonephrosis. An interval of reasonably good health for four years, except for chronic cystitis, was then followed by four attacks of colic in the left kidney, the last culminating in an attack of anuria in which only 5 oz. of urine were voided in one hundred hours. The longest period of complete anuria was thirty-five hours. Impending uræmia was indicated by a blood-urea content of 75 mg. Nephrotomy and decapsulation of the single kidney were followed by prompt re-establishment of the normal urinary output and recovery.

EDWARD F. HESS, M.D.

Braasch, W. F.: Atrophic Pyelonephritis. *J. Urol.*, 1922, vii, 247.

The author reports twenty-eight cases of atrophic pyelonephritis observed at the Mayo Clinic. In twenty-two of these cases operation was performed.

Atrophic pyelonephritis is distinguishable from chronic bilateral pyelonephritis both clinically and pathologically. The urinary symptoms are less severe and usually not progressive. The pain is unilateral and more severe, and often is accompanied by evidence of acute renal infection. Pain is the most common symptom and may occur as short periods of dull, unilateral ache or in acute attacks. Frequent micturition and dysuria are common symptoms, but may disappear later in the course of the disease. Hematuria occasionally occurs. In some cases there may be attacks of chills and fever. As a rule moderate amounts of pus are found in the urine. Possible foci of infection in the teeth and tonsils are usually present.

Cystoscopic data are of great value in establishing a correct diagnosis. The bladder shows very little change. In most cases the spurts of urine from the ureteral openings are diminished on the affected

side and increased on the healthy side. The urine from the affected side may be turbid, but the number of pus cells in the urine catheterized from the affected kidney is usually only moderate. The differential functional test is generally of the greatest value. Diminution of the output of phenolsulphonephthalein from the affected side in the presence of little evidence of infection and an increase in the output from the opposite kidney is almost pathognomonic of atrophic pyelonephritis.

The differential diagnosis requires the consideration of: (1) reduplication of the renal pelvis, (2) wide stricture of the lower ureter, and (3) chronic renal tuberculosis.

Pathologic examination shows kidneys which are small, firm, and contracted with outer surfaces which are smooth and rounded and devoid of any scarring, as in chronic nephritis. One-half of the kidney may be involved more than the other. The fibrosis and destruction of the kidney substance make differentiation between the cortex and medulla very difficult, but as a rule the former is thinned while the latter is thickened and fibrous. Microscopically, the tubules are atrophic and their cells have a compressed appearance. The ureters are thickened and dilated, especially in their upper third.

The condition is not the end-result of the usual pyelonephritis, but is probably due to a septic infarct.

The operative results in these cases have been very satisfactory. Improvement or cessation of the vesical symptoms and improvement in the general condition have been obtained in practically every instance.

GORDON S. FOULDS, M.B.

Lindstroem, L. J.: Studies of Malignant Tumors of the Kidney (Studien ueber maligne Nierentumoren). *Arb. a. d. path. Inst. d. Univ. Helsingfors*, 1921, n.s. ii, 299.

The author reports the histories and the results of a macroscopic and microscopic study of forty malignant tumors of the kidney which were seen during a period of twenty-three years (1897 to 1919) in the surgical clinic of the University of Helsingfors.

In the anatomical division of the article the mixed tumors (five cases) are discussed first. The origin of these growths the author believes is to be sought in the relatively highly differentiated cells, namely, in the anlage of the permanent kidney. To explain their appearance it is not necessary to assume an abnormal cell connection as cells of the metanephron may have been arrested in their development by local disturbances, proliferating pathologically later.

Of six renal sarcomata, three occurred in children between 14 and 15 years of age, and three occurred in adults between 35 and 50 years of age. The sarcomata developing in children are differentiated macroscopically from those of adults by a greater abundance of cells (round and spindle cells), by a smaller amount of intercellular substance, and by their tendency to metastasize. The question of the genetic equivalence of sarcomata is not definitely decided by the author, but he states that many facts indicate that the sarcomata of children depend upon embryonic aberrations whereas those of adults have their origin in the developed connective tissue of the kidney or renal capsule.

In the case case of carcinoma of the renal pelvis, which microscopic examination proved to be a case of pavement-cell epithelioma, the tumor differed macroscopically from the other types of renal tumors. Pathologically, carcinomata of the renal pelvis are characterized by their invasion of other organs and their tendency to form metastases in the other kidney and the bladder. Whether this metastasis occurs by way of the urinary tract or by way of the lymphatics is still unknown.

The majority of the growths studied were Grawitz tumors (twenty-eight cases). These may form metastases by way of the blood and lymph vessels or by implantation through the urinary tract. Their histologic picture varies. Numerous varieties of one and the same type of tumor belong to the same group. The author classifies them as follows: (1) the papillary form, (2) the solid papillary form, (3) the adenoma-like (cystopapillary) form, (4) the solid alveolar form. The genesis of Grawitz tumors is discussed and the Grawitz theory that they arise from adrenal tissue is denied chiefly because both intracanal and intrapapillary tumors of the same type are found. The author assumes that the cause of Grawitz tumors is to be sought in embryonic malformations inhibiting the differentiation of the cells of the accessory renal epithelium.

In the clinical part of the article it is shown that the initial symptoms often vary markedly. Frequently cachexia and fever are added to the classical signs of hematuria, tumor, and pain. Varicocele associated with a tumor was seen only once. Skin changes, such as those described by Clairmont and Kaplanowicz as "Ephelides," were never observed.

The only rational treatment is lumbar nephrectomy. The contra-indications are immobility of the tumor, varicose veins on the abdomen and leg (Israel), degenerative changes in the heart in elderly persons, and continuous intensive pain, which indicate that the most favorable time for operation has passed. Of forty patients operated upon, five (12.5 per cent) died. Of eight children under 15 years of age with malignant renal tumors all died of hemorrhage within nine months. Only 23.8 per cent of the total number of patients and only 31.8 per cent of the total number of adults remained free from recurrence for three years.

VON KEDOWITZ (Z).

Landon, L. H., and Alter, N. M.: Carcinomatous Papilloma of the Renal Pelvis. *Ann. Surg.*, 1922, LVII, 1095.

In the case reported the greater portion of the kidney was occupied by a large cavity lined nearly completely by a papillary growth which was continuous with the pelvis and ureter. The villi were changed into irregularly thickened mushroom-like projections. These were very friable and most of them were covered with necrotic material and blood clots. All that remained of the normal kidney tissue was a small island 3 cm. in diameter. The macroscopic examination showed a typical papillomatous growth at the pelvis, but in the parenchyma typical carcinomatous changes were evident.

IRVIN S. KOLL, M.D.

BLADDER, URETHRA, AND PENIS

Geraghty, J. T.: Sphincterotomy per Urethram: A Simple and Safe Procedure for the Cure of Contracture of the Vesical Orifice. *J. Urol.*, 1922, VII, 367.

The "prostatisme sans prostate" of the earlier French literature or the "median bar" of more recent literature is due to inflammatory infiltration at the vesical orifice. Involvement of the muscle fibers of the internal sphincter causes a narrowing of the outlet and a decrease in the relaxation of the sphincter. Complete and permanent relief may be given by simple division of the internal sphincter posteriorly.

Because of the sloughing and hemorrhage which not infrequently follow the modified Bottini operation of Chetwood and the use of the Young punch and of the cautery punch suggested by Caulk, the author has devised an instrument for simple division of the sphincter through the urethra. Through a tube similar to the outer sheath of the Young punch, a wedge-shaped concave knife which accurately fits the tube is used. Under local anesthesia and with the bladder dilated, the vesical orifice is engaged in the fenestra, the knife is introduced, and the fibrotic ring incised. If a deeper incision is required, the ring is lifted into the fenestra with a forked spear.

The operation is no more painful than the average cystoscopy, and requires only a few minutes. The urine is merely tinged with blood and a retention catheter is unnecessary. CLAUDE D. PICKRELL, M.D.

Watson, E. M.: The Structural Basis for Congenital Valve Formation in the Posterior Urethra. *J. Urol.*, 1922, VII, 371.

On the basis of a study of the posterior urethra in fetuses of various ages the author concludes that the so-called valves or congenital strictures of the posterior urethra may be formed as early as the fourteenth week of fetal life and are due to the overgrowth and attachment of the tip of the colliculus to the roof of the urethra.

H. L. SANFORD, M.D.

Grauhan, M.: The So-Called Callous Tumors of the Male Urethra (Zur Frage der sogenannten Callusgeschwülste der männlichen Harnröhre). *Deutsche Zeitschr. f. Chir.*, 1921, clxv, 154.

The author describes the case of a 48-year-old man who came to operation for the removal of a nodular tumor of the perineum 5 to 6 cm. long and 3 to 4 cm. broad. The history revealed a trauma followed by stricture at the age of 19, which preceded an attack of gonorrhea occurring one year later. In his occupation the patient was frequently obliged to sit on a cable or rod. On examination, the tumor proved to be a purely inflammatory pseudo-tumor with atypical proliferation of the urethral epithelium.

The author classifies such growths with inflammatory tumors of the abdominal wall, as proposed by Schloffer. He advises their radical extirpation, if it is at all possible, because they are very difficult to differentiate from true tumors, because they not rarely form the basis for the development of carcinoma, and because, with the tumor, the severe and extensive stricture can be eliminated quickly and safely. DEUS (Z).

GENITAL ORGANS

Broders, A. C.: Epithelioma of the Genito-Urinary Organs. *Ann. Surg.*, 1922, lxxv, 574.

While the term "cancer" is applied loosely to all malignant neoplasms that arise from the protective epithelia, the kinds of cancer differ greatly in their degree of malignancy. Broders classifies epitheliomata into four groups according to whether the undifferentiated epithelia constitute one-fourth, one-half, three-fourths, or all of them. He reports 373 cases of general epithelioma observed in the Mayo Clinic, and concludes that these tumors occur three times as often in females as in males.

The average age of the patients was 50.04 years. Ninety-five and ninety-eight hundredths per cent had been married, 33.85 per cent were farmers, and 11.83 per cent had a family history of malignancy. Of the women, 90.77 per cent had been pregnant, and 41.26 per cent of those with cervical lesions were past the menopause. Of the patients with lesions of the cervix, bladder, and urethra, 86.01 per cent gave a history of hæmorrhage. The average duration of the lesion in all cases was 1.35 years.

Of the genito-urinary epitheliomata, 56.87 per cent were located in the cervix and 25.36 per cent in the bladder. Of the 70.76 per cent of the operable cases of epithelioma of the labium and penis metastasis was demonstrated in 38.05 per cent. According to cellular activity, 5.07 per cent of the epitheliomata of the genito-urinary organs were graded 1, 24.25 per cent were graded 2, 43.55 per cent were graded 3, and 26.84 per cent were graded 4. Of the 76.59 per cent of patients operated upon who were traced, only 21.36 per cent were living 8.58 years after the operation. Excluding the postoperative

deaths and deaths due to undetermined causes, 93.27 per cent of the deaths resulted from epithelioma on an average of 1.34 years after the last operation. All of the patients with small lesions of the cervix (under 2 cm.) and 80 per cent of those with small lesions of the bladder obtained good results. All of the patients with large lesions of the penis (over 4 cm.) obtained poor results.

Of the patients with lesions of the labia with metastasis 14.28 per cent had good results. In all of the cases of lesions of the penis with metastasis the results were poor. One of five patients with lesions of the cervix obtained good results, while 80 per cent lived an average of 12.07 years. The results were good in 48.56 per cent of the cases of lesions of the bladder and 17.64 per cent of those of lesions of the labium. Of the patients with lesions of the penis 41.16 per cent were free from the disease for 6.95 years, and of those with lesions of the vagina 33.33 per cent have been free from the disease for 8.32 years.

Considering all the genito-urinary organs relative to mortality and excluding cases of postoperative deaths and deaths from unknown causes, epithelioma was the cause of death in 33.33 per cent of the cases in Grade 1, in 81.08 per cent of those of Grade 2, in 96.33 per cent of those of Grade 3, and in 9.27 per cent of those of Grade 4. The total good results were 83.33 per cent in Grade 1; 45.90 per cent in Grade 2; 25 per cent in Grade 3; and 12.19 per cent in Grade 4. Of the entire number of patients, 23.05 per cent were alive with good results after 8.58 years, 5.08 per cent were alive with good results after 6.34 years, and 28.13 per cent obtained good results. B. F. ROLLER, M.D.

Geraghty, J. T.: A New Method of Perineal Prostatectomy Which Insures More Perfect Functional Results: A Preliminary Report. *J. Urol.*, 1922, vii, 339.

In the suprapubic prostatectomy the manipulations are within the prostatic capsule; the intrinsic and extrinsic muscles therefore are not injured. In the usual perineal operation the external sphincter is either divided or dislocated before the membranous urethra is opened. Partial incontinence and occasionally permanent loss of control may result, particularly in cases in which the prostate is large.

An operation used by the author in ten cases exposes the prostate without injury to the membranous urethra and external sphincter, and corrects the occasional faulty control. The patient is placed in the exaggerated perineal lithotomy position and the prostate is forced forward with the tractor devised by Freiberg. The ischio-rectal fossæ are opened with the finger through a semi-circular incision, and a blade of a bifid retractor is placed fairly deep in each one. The central tendon is divided close to the bulb and the rectum is freed from the prostate by blunt dissection. The anterior fibers of the levator ani are pushed laterally while

those covering the prostate are pushed backward. A curved incision is made through the posterior layer of the prostate, the point at the apex and the legs extending downward and backward. The ejaculatory ducts are preserved and maximum exposure of the lobes is obtained. Enucleation is effected with the blunt dissector and the finger, with traction to bring forward the suburethral and intravesical lobes. When haemostasis has been obtained a large single tube is placed in the bladder and long strips of gauze are packed around it well

within the vesical orifice and then in the prostatic cavity. The overhanging flap of bladder wall is brought forward so that it is included in the packing. The wound is then closed around the tube with subcuticular chromic catgut and the tube is sutured to the skin edge with heavy silk.

The technique described simplifies the operation. The membranous urethra is not exposed as it is in Young's method, and the intrinsic and extrinsic musculature and the nerves are not disturbed.

C. D. PICKRELL, M.D.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Joseph, J.: Total and Partial Rhinoplasty and the Free Transplantation of Skin (Beiträge zur totalen und partiellen Rhinoneoplastik nebst einem Vorschlage zur freien Hautüberpflanzung). *Klin. Wochenschr.*, 1922, i, 678.

The insertion of a piece of bone or of cartilage is not absolutely necessary for the formation of the tip of the nose as a simple skin plastic with the transplantation of the nutritive bridge of the flap from the forehead, the "nasal-tip flap," may suffice. Joseph always constructs the soft parts of the nose first and inserts the bone later.

For the formation of the septum he uses either a process of the forehead flap or a prolongation of the nasal-tip flap. These may be attached to a tongue-shaped flap from the upper lip. A transplanted splinter of bone will give the septum the necessary support unless it shrinks.

In the presence of a defect the adjacent portions of the nose must be replaced before the true nasal plastic is done; for example, by the formation of a flap from the cheek in the horizontal direction.

The secondary defect in the forehead is sutured if possible, or left to granulate, or covered by a Thiersch graft with or without a pedicle. In the latter procedure, the transplant is maintained in its position by a gauze dressing corresponding to the defect which is held over the defect tensely and with slight pressure and sutured to the edges of the wound.

KOENIG (Z).

Dabney, V.: The Moure Operation for Removal of Large Growths and Foreign Bodies from the Antrum. *Surg., Gynec. & Obst.*, 1922, xxxiv, 667.

The Moure operation is indicated especially when the naris is crowded with neoplasms, either benign or malignant, single or multiple, which are evidently overflowing from the antrum. Usually there are, in addition, independent foci in the ethmoid or sphenoid.

Argyrol is first instilled in the eye of the operative side, the face is painted with tincture of iodine, which is immediately removed with alcohol, and the eye is covered with a pad wrung dry from a bichloride solution. Towels are draped over the head and neck in the usual way to cover all but the part to be attacked. A curved incision is made parallel with, and $\frac{1}{8}$ in. below, the infra-orbital margin, beginning below the inner canthus. From this point it is carried straight down along the juncture of the nasal ala and the face to the edge of the nasolabial juncture. The bleeding must be controlled as the incision is lengthened, so that the blood will not completely obscure the field.

When a practically dry field has been obtained the periosteum is elevated with the utmost care and thoroughness. Upon the thoroughness of this step depends at least half the success of the cosmetic result. In order to prevent bruising of the parts and sloughing, all artery clamps that can be dispensed with are removed and the roughly triangular flap is retracted with a loop of silk run through the apex of the tissue instead of with metal retractors. Here, again, an effort is made to insure primary union of the soft parts. The ala of the nose is then elevated, access is gained to the nasal bone and the nasal process of the superior maxilla, and all hæmorrhage is controlled.

Before the exposure of the interior of the antrum and naris, the posterior naris is packed and the use of an aspirator such as is employed in tonsil operations is begun by the anesthetist. This instrument must be kept continuously in the throat to catch any blood that may escape through or around the nasal packing until all the growths have been removed, the hæmorrhage has been controlled, and the general cavity has been packed. The separation of these masses, especially when they are malignant, is attended generally by a profuse flow of blood which, of necessity, would proceed down the rhinopharynx and into the trachea unless preventive measures were taken well in advance. Even when this has been done, it is at times necessary to renew the packing because of its saturation with blood.

With a square-edged chisel, a section of bone is then marked out, corresponding in extent and contour to the skin flap but including, in addition, the posterior half of the nasal bone and as much of the nasal process as may be necessary to allow free inspection of the interior of the nose and the ethmoid. When this area has been marked out by the chisel and broken out with suitable forceps, the entire interior of the antrum and nose is exposed and easily accessible for any instrumentation that may be necessary. No other method will reveal this general cavity with such safety and thoroughness. It is now an easy matter to remove all growths from their numerous attachments.

After the wound has been packed with gauze impregnated with Dakin oil solution it is sewed up in two layers, care being taken in approximating the skin edges. The end of the packing is pulled down to the edge of the nostril where it can be readily found when it is to be removed on the third day. An ice bag is kept on the cheek continuously for two days. In the absence of malignancy or much foul discharge, repacking is usually unnecessary, though this can be done if the attendant wishes as the nostril offers all the room necessary for it and for free inspection.

As a rule gentle, warm saline irrigation two or three times daily is all the after-care that is required in benign cases. In the presence of malignancy the wound must be left open, treated as any other open wound, and the use of the X-ray and radium persisted in. Except in such cases, there is no depression or deformity in the face; in fact, when primary union takes place, the scar is hardly visible.

O. M. ROSE, M.D.

THROAT

Withers, S.: On the Use of Radium to Effect an Atrophy of Pharyngeal Lymphoid Tissues—A Topical Review. *Laryngoscope*, 1927, XXXV, 191.

Tonsillectomy should be regarded as a serious operation. As in the majority of cases patients undergo the operation with little disturbance and the results are apparently good, the removal of the tonsils is not infrequently advised on the assumption that the operation is a minor procedure and the tonsils are in themselves a disease. Complications may occur and the convalescence may be slow.

In general, the structural characteristics which determine susceptibility to radiation are of a cellular nature: an undifferentiated form of cells; hyperchromatic nuclei; rapid growth with abundance of mitoses, vascularity, especially when due to an

abundance of delicate capillaries; and absence of much intercellular substance.

It is better to sacrifice many innocent tonsils than to allow one guilty one to escape removal, but tonsillectomy cannot remove all of the objectionable lymphoid tissue in the pharyngeal mucous membrane, and when the excision of large amounts is done early in life the growth of outlying parts of the ring appears to be stimulated.

The demonstration of certain biological properties of cells by radium has been a permanent contribution to science. Tonsillar tissue is probably one of the most radiosensitive tissues of the body. It is possible to produce marked retrogression in leucocytic elements and tonsillar tissue with the X-rays and radium. The use of radium to cause atrophy of the tonsils is not new and is founded on sound biological principles. Suitable means of application have been devised. Radium is preferable to the X-rays in the treatment of hypertrophied tonsils as it is less dangerous and its radiation is constant. It may be distributed in plaques, tubes, needles, or bare tubes of emanation which may be applied directly where the effect is desired without injury to the surrounding parts. In certain forms of application, use may be made of beta radiation which has a decided bactericidal effect.

DAVID R. BOWEN, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of an article referred to may be found.

Operative Surgery and Technique

The operating room. J. F. JONES. N. York M. J., 1922, cxv, 501.

Principles, methods, and ends of clinical surgery. M. DONATI. Riforma med., 1922, xxxviii, 457.

Some considerations of operating room methods. T. L. DEANOR. Am. J. Surg., 1922, xxxvi, 199.

Postoperative adhesions and their prevention. H. P. REPIEGLE. Hahneman. Month., 1922, lvii, 283.

Aseptic and Antiseptic Surgery

The importance of continuous sterilization of instruments in operations for carcinoma as a protection against local recurrences. K. HENSCHEN. Zentralbl. f. Chir., 1922, xlix, 314. [177]

The germicidal character of the emanations from colloids or certain silver salts. E. G. BALLENGER and O. F. ELDER. Surg., Gynec. & Obst., 1922, xxv, 57.

Anæsthesia

The choice of the anæsthetic. E. A. TYLER. Hahneman. Month., 1922, lvii, 292.

Some studies of the blood before and after etherization by the drop method. M. G. DAY. Am. J. Surg., 1922, xxxvi, Anæst. Supp., 33. [177]

Discussion on the utility and limitations of nitrous oxide anæsthesia. FLEMING, BARTON, BOYLE, CHALDECOTT, PAGE, and SHIPWAY. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Anæst., 7. [178]

Spinal anæsthesia with cocaine and caffeine. CARAVEN. Arch. franco-belges de chir., 1922, xxv, 567.

Combined anæsthesia. C. RYAN. J. Iowa State M. Soc., 1922, xii, 181.

Combined or synergistic anæsthesia. C. RYAN and J. RUSSELL. Southwest J. M. & S., 1922, xxx, 9.

Anæsthesia in intracranial surgery. Z. MENNELL. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Anæst., 13. [178]

The question of the use of anæsthesia in lumbar puncture. J. C. REGAN. Am. J. M. Sc., 1922, clxiii, 738.

Abdominal operations under local anæsthesia. P. G. SKILLERN. Am. J. Surg., 1922, xxxvi, 97.

Lessons from anæsthetic accidents and near fatalities. R. M. WATERS. Am. J. Surg., 1922, xxxvi, Anæst. Supp., 57. [179]

Some observations on post-anæsthetic complications. G. F. R. SMITH. Brit. M. J., 1922, i, 513. [179]

Postoperative acetoneuria. T. LAURENTI. Policlin., Rome, 1922, xxxix, sez. chir., 282. [179]

Surgical Instruments and Apparatus

Horsehair for hypodermic needles. B. A. DANIELS. J. Am. M. Ass., 1922, lxxviii, 1450.

Convertible retractor. A. N. BESSESEN. J. Am. M. Ass., 1922, lxxviii, 1537.

An improved needle forceps. E. A. PRINITY. Surg., Gynec. & Obst., 1922, xxxiv, 679.

Sphenoid safety burr. J. A. CAVANAUGH. J. Am. M. Ass., 1922, lxxviii, 1388.

An apparatus for aiding in lung expansion. H. S. IRVINE and J. E. ELSE. J. Am. M. Ass., 1922, lxxviii, 1450.

SURGERY OF THE HEAD AND NECK

Head

Diffuse cranial osteomyelitis as a sequela to nasal accessory sinus suppuration. G. A. D. McARTHUR. Med. J. Australia, 1922, i, 410. [180]

Streptococcal osteomyelitis of the temporal bone. H. BOYD-SNER. J. Indiana M. Ass., 1922, xv, 147. [180]

Cranial fracture. E. MAGNI. Arch. ital. di chir., 1922, v, 177.

Cranioplastics. M. SAITO. Arch. f. klin. Chir., 1922, cxix, 331.

Severe concussion of the brain with lacerations. T. M. McDUFFEE. Internat. J. Surg., 1922, xxiv, 68.

Functional tests in injuries of the brain. H. FRANK. Ztschr. f. ang. Psych., 1921, xix, 171.

Traumatic extra-dural hematoma in a child. H. MONDOR. Arch. franco-belges de chir., 1922, xxv, 425.

A case of latent intracranial abscess associated with double acute mastoiditis. M. VLASTO and S. A. OWEN. Lancet, 1922, ccii, 992. [181]

A case of intradural cerebellar abscess complicated by acute labyrinthitis: a case of labyrinthitis complicating chronic mastoiditis. S. J. KOPETZKY and A. A. SCHWARTZ. Laryngoscope, 1922, xxxii, 374. [181]

The diagnosis of brain tumors by the Bárány tests, with reports of cases proved by operation or necropsy. L. FISHER. J. Am. M. Ass., 1922, lxxviii, 1515.

Tumors of the brain: their pathology and treatment: an analysis of eighty-five cases. H. R. DEW. Med. J. Australia, 1922, i, 515. [183]

Glioma of the cerebrum in a child: report of case. H. H. HAGAN and S. GRAVES. Kentucky M. J., 1922, xx, 371.

A report of two cases of glioma of the brain. H. V. KEILLER. Texas State J. M., 1922, xviii, 45.

A contribution to the casuistics of angioma of the brain. E. LECHNER. Beitr. z. klin. Chir., 1922, cxix, 174.

The treatment of non-encapsulated brain tumors by extensive resection of contiguous brain tissue. W. E. DANDY. Bull. Johns Hopkins Hosp., 1922, xxxiii, 188. [183]

A large epidermal cholesteroloma of the parietotemporal region deforming the left hemisphere without cerebral symptoms. H. CROMBIE. *Surg., Gynec. & Obst.*, 1922, **XXXV**, 117. [184]

A case of brain tumor resembling epilepsy. W. DREYER. *Arch. f. Psychiat.*, 1920, **IV**, 399.

The importance of brain surgery in diffuse hyperkinesia. C. I. DREMSCHER. *Stuttgart. d. Neurologischen chir. Ges.*, 1922. [184]

A giant sarcoma of the frontal maxillary, ethmoidal, and sphenoidal sinuses. C. GROSS. *Arch. franco-belges de chir.*, 1922, **XXV**, 423.

Cranial nerve palsies produced by tumors in the region of the jugular foramen. W. O. GYLL. *Surg., Gynec. & Obst.*, 1922, **XXXV**, 227. [185]

Facial paralysis and the surgical repair of the facial nerve. E. W. HAY. *Laryngoscope*, 1922, **XXXII**, 377. [185]

Epithelioma of the face and ear. W. J. YOUNG. *Kentucky M. J.*, 1922, **XX**, 365.

Two advanced cases of cancer of the face—a warning against delay in treatment. H. A. KELLY. *Therap. Gaz.*, 1922, **XLVI**, 308.

The modern treatment of cancer of the lip. H. K. PANGLOSS. *Surg., Gynec. & Obst.*, 1922, **XXIV**, 389. [186]

cosmetic incision of the soft parts for the temporary splitting of the mandible. F. KERNIG. *Zentralbl. f. Chir.*, 1922, **XXX**, 367.

A practical method of fixation in fractures of the mandible. R. H. IYV. *Surg., Gynec. & Obst.*, 1922, **XXXV**, 399. [187]

Sarcoma of the jaw, with a case report. H. J. GIBBY. *Boston M. & S. J.*, 1922, **CLXXXV**, 502.

Neck

Differential diagnosis of diseases of the thyroid gland. J. PHILLIPS. *Canadian M. Ass. J.*, 1922, **XL**, 318.

Hypothyroidism and the general practitioner. J. H. HERRIN. *Illinois M. J.*, 1922, **XL**, 274.

The hyperthyroidism. A. HELLMICH. *Deutsche med. Wochenschr.*, 1922, **XLVIII**, 428.

The prevention of double goiter in man. O. P. KIMBALL. *Am. J. M. Sc.*, 1922, **CLXXX**, 534.

Goiter. EMBERT. *Klin. Wochenschr.*, 1922, **I**, 457.

The relationship between the histologic structure and the biological activities of goiter tissue. F. DE QUERVAIN. *Surg., Gynec. & Obst.*, 1922, **XXIV**, 373. [188]

Atypical forms of Graves disease (diffuse toxic, interstitial goiter). A. E. HERTZLER. *J. Missouri State M. Ass.*, 1922, **XXX**, 307.

Prevention in goiter surgery. T. C. THOMPSON. *J. Med. Ass. Georgia*, 1922, **XL**, 178.

The present status of the surgery of goiter. O. HILDEBRAND. *Deutsche med. Wochenschr.*, 1922, **XLVIII**, 46.

Ligation operation in treatment of diseases of the thyroid gland. W. I. HUME. *Kentucky M. J.*, 1922, **XX**, 344.

Surgery of toxic goiter. C. F. NASSAU. *Therap. Gaz.*, 1922, **XLVI**, 305.

Temporary paralysis of the recurrent nerve after goiter operations. L. BÉRAUD. *Lyon chirurg.*, 1922, **XXX**, 1. [189]

Hyperthyroidism in children before puberty: report of a case. R. K. BUFORD. *J. Am. M. Ass.*, 1922, **CLXXVIII**, 1334.

SURGERY OF THE CHEST

Chest Wall and Breast

Tuberculous abscesses of the chest wall. H. AUCHINCLOSS. *Ann. Surg.*, 1922, **XXXV**, 296.

Chest paraneuritis in its relation to the extirpation of tumors of the bony chest wall. C. A. HEDGECOCK. *Arch. Surg.*, 1922, **LV**, 455. [189]

A review of 200 cases of breast disease. I. ABRAHAM and S. GRAYES. *Illinois M. J.*, 1922, **XL**, 328.

Tumors of the breast, benign and malignant. C. H. PRYCE and W. C. WATTS. *Ann. Surg.*, 1922, **LVV**, 531.

Cancer of the breast. J. L. YATES. *Wisconsin M. J.*, 1922, **XXI**, 109.

The remaining breast after radical removal of the opposite side for carcinoma. H. H. TAYLOR. *Surg., Gynec. & Obst.*, 1922, **XXIV**, 478.

Trachea and Lungs

Transverse tracheostomy. A. BUNNET. *Med. Klin.*, 1922, **XXVI**, 117. [189]

Intralobar eschinococci cyst of the left lung. A. LAMA. *Riforma med.*, 1922, **XXXVIII**, 391.

The freeing of pleural adhesions by the high-frequency current in the course of pneumothorax treatment. HAYE. *Presse med. Par.*, 1922, **CCX**, 445. [190]

Carcinoma of the lung: a study of its incidence, pathology, and relative importance, with a report of thirteen cases studied at necropsy. M. BARRON. *Arch. Surg.*, 1922, **LV**, 624. [190]

Pharynx and Esophagus

Diverticula of the pharynx and esophagus. L. VAN DEN WILDERBERG. *Arch. franco-belges de chir.*, 1922, **XXV**, 128.

External esophagostomy for the removal of foreign bodies. W. M. NAKASOFF. *Verhandl. d. russ. chir.*, 1922, **XXX**, 1. [190]

Miscellaneous

The differential diagnosis of diseases of the mediastinum. J. PHILLIPS. *J. Am. M. Ass.*, 1922, **CLXXVIII**, 1323.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Herniations in the sheath of the transversus testis abdominis. E. PERSSON. *Acta chirurg. Scand.*, 1922, **LV**, 429.

Epigastric hernia. R. J. E. CHASE. *Illinois M. J.*, 1922, **XL**, 300.

Strangulated direct inguinal hernia. E. E. HOSMER. *Iowa M. J.*, 1922, **XX**, 198.

A case of strangulated inguinal hernia reduced en masse. R. BEYERHARD. *Riforma med.*, 1922, **XXXVIII**, 483.

Inguinal hernia: its surgical treatment. P. W. HARRISON. *Arch. Surg.*, 1922, **LV**, 660.

The question of recurrence after the Bassini operation. J. SAKJAN. *Lijeb. vijestnik.*, 1922, **XLV**, 13.

Improved instrument for the radical cure of femoral hernia: inguinal method. A. F. M. WOOLY. *Lancet*, 1922, **CLXX**, 1002.

Immediate operations in abdominal injuries. J. B. FORTAGAN. *Med. Libera*, 1922, xvi, 217.
 The treatment of acute suppurative peritonitis. H. SCHAMM. *Pedicle crasopismo lek.*, 1921, i, 136.
 Intraperitoneal injections in infancy. A. G. MITCHELL. *Arch. Pediat.*, 1922, xxxix, 201.

Gastro-Intestinal Tract

Disorders of the stomach: a few facts, fallacies, and figures. C. W. ROBERTS. *J. Med. Ass. Georgia*, 1922, xi, 174.

The size, shape, and position of the stomach in diagnosis. C. D. CLEGHORN. *J. Med. Ass. Georgia*, 1922, xi, 190.

Gastro-enterology. J. M. BELL. *Med. Herald*, 1922, xli, 134.

A case of congenital pyloric stenosis. R. C. SMITH. *Lancet*, 1922, ccl, 914.

The results and effect of the Weber-Rammstedt operation. E. GOHRMANN. *Deutsche med. Wchnschr.*, 1922, xlviii, 351.

Gastric changes in oesophageal processes. T. BÄRSONY. *Orvosi hetil.*, 1922, lxvi, 32.

Gastric hemorrhage. G. E. ARMSTRONG. *Surg., Gynec. & Obst.*, 1922, xxxiv, 466.

Gastric and duodenal ulcer. J. C. JOHNSON. *J. Med. Ass. Georgia*, 1922, xi, 186.

Round gastric and duodenal ulcers in Russia. E. M. BUSCHMANN. *Moderne Med.*, 1921, i, 28.

The diagnosis and surgical treatment of gastric and duodenal ulcers. L. H. SLOCUMB. *J. Arkansas M. Soc.*, 1922, xviii, 137.

Studies of the cause of pain in gastric and duodenal ulcers; peristalsis as the direct cause of pain in gastric ulcers with achylia and in duodenal ulcers. L. L. J. HARDT. *Arch. Int. Med.*, 1922, xxix, 684.

The surgical treatment of gastric and duodenal ulcers, with special reference to pyloroplasty. J. S. HORSLEY and W. T. VAUGHAN. *J. Am. M. Ass.*, 1922, lxxviii, 1371.

The treatment and prognosis of perforated gastric and duodenal ulcers. W. SCHMIDT. *Beitr. z. klin. Chir.*, 1921, cxv, 568.

Gastric resection as the method of treatment in stomach perforations. R. GANDUSIO. *Arch. ital. di chir.*, 1922, v, 217.

Gastro-entero-anastomosis. W. L. POKOTILO. *Moderne Med.*, 1921, i, 1.

Stenosis of gastro-enterostomy stoma. R. LEWISOHN. *Ann. Surg.*, 1922, lxxv, 627.

Early diagnosis in gastro-intestinal carcinoma. P. F. ROGERS. *Wisconsin M. J.*, 1922, xx, 605.

Some remarks on the diagnosis of cancer of the stomach. A. D. DUNN. *Nebraska State M. J.*, 1922, vii, 159.

Erroneous diagnoses of gastric cancer in senility. E. H. B. VAN LIER. *Berl. klin. Wchnschr.*, 1921, lviii, 1306.

Studies of the ulcerating carcinoma of the stomach. F. PEYER. *Deutsche Ztschr. f. Chir.*, 1922, clxviii, 409.

A case of resection of the stomach. R. DALY. *Med. Press*, 1922, n.s. cxiii, 448.

Paraduodenal hernia, with report of a case. R. S. PHILLIPS. *Bull. Ayer Clin. Lab. Pennsylvania Hosp., Phila.*, 1922, 89.

A contribution to the study of duodenal diverticulum. H. HOLZWEISSIG. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxiv, 527.

A case of duodenal diverticulum. HOSEMAN. *Zentralbl. f. Chir.*, 1921, xlviii, 1877.

A chronic duodenal ulcer case. E. T. PRIZER. *Hahnemann. Month.*, 1922, lvii, 276.

Ruptured duodenal ulcer. C. T. SOUTHER. *Cincinnati J. M.*, 1922, iii, 95.

The treatment of duodenal and gastric ulcers. A. C. STRACHAUER. *Minnesota Med.*, 1922, v, 290.

Primary duodenal adhesions. S. WIDERØE. *Norsk Mag. f. Lægevidensk.*, 1922, lxxxiii, 89.

Spontaneous arteriomesenteric occlusion of the duodenum complicated by situs inversus totalis. A. JENTZER. *Schweiz. Rundschau. f. Med.*, 1922, xxii, 25.

The technique of duodenojejunostomy. R. GRÉGOIRE. *J. de chir.*, 1922, xix, 449.

Hernia of the ileum occurring through a rent in the mesentery. F. H. JACKSON. *Am. J. Obst. & Gynec.*, 1922, iii, 527.

On certain causes of chronic constipation not usually recognized. E. F. CYRIAX. *Med. Press*, 1922, n.s. cxiii, 424.

Bowel obstruction—report of cases. G. E. CANNON. *J. Arkansas M. Soc.*, 1922, xviii, 234.

Acute intussusception. W. F. HARPER. *Boston M. & S. J.*, 1922, clxxvi, 700.

A case of chronic intussusception. H. H. SCHLINK. *Med. Press*, 1922, n.s. cxiii, 426.

A contribution to the question of retrograde incarceration. B. BREITNER. *Arch. f. klin. Chir.*, 1922, cxix, 302.

Acute ileus: differential diagnosis. D. MACRAE, JR. *Nebraska State M. J.*, 1922, vii, 154.

An unusual case of intestinal obstruction. A. M. WILLIS. *Arch. Surg.*, 1922, iv, 690.

Acute intestinal obstruction. A. F. R. ANDRESEN. *N. York M. J.*, 1922, cxv, 653.

Chronic intestinal stasis. W. A. LANE. *Practitioner*, 1922, cviii, 305.

Primary lymphosarcoma (lymphoblastoma) of the intestine. H. B. ANDERSON. *Bull. Ayer Clin. Lab. Pennsylvania Hosp., Phila.*, 1922, 67.

A new colon tube. J. J. BROWNSON. *J. Am. M. Ass.*, 1922, lxxviii, 1458.

Two cases of congenital megacolon. P. WORINGER. *Arch. franco-belges de chir.*, 1922, xiv, 502.

Congenital megacolon in the adult. W. F. FOWLER, S. C. DAVIDSON, and R. R. MELLON. *Surg., Gynec. & Obst.*, 1922, xxxiv, 601.

Two cases of megacolon cured by colectomy. L. SENCERT and R. SIMON. *Arch. franco-belges de chir.*, 1922, xv, 493.

Fermentive colitis. A. SACHS. *Med. Herald*, 1922, xli, 143.

Gas cysts of the intestines. J. L. BUBIS and C. E. SWANBECK. *Ann. Surg.*, 1922, lxxv, 620.

Diverticulitis of the pelvic colon with vesicocolic fistula. L. NORBURY. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Surg., 44.

Two specimens of diverticulitis of the pelvic colon successfully removed by resection and anastomosis. C. GORDON-WATSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Surg., 37.

A contribution to the subject of the appendix based on 1,000 cases treated surgically. H. STICHELE. *Beitr. z. klin. Chir.*, 1922, cxv, 607.

The results of the surgical treatment of 103 appendiceal abscesses; also a case of carcinoid of the appendix. DEWEES. *Beitr. z. klin. Chir.*, 1922, cxv, 581.

Appendicitis. J. HOCHENEGG. *Wien. med. Wchnschr.*, 1922, lxxii, 17, 89, 179, 346, 480.

Appendicitis and weather conditions. SEIFERT. *Zentralbl. f. Chir.*, 1921, xlviii, 1877.

Appendicitis and infection of the urinary tract. O. LARSEN. *Med. Rev.*, 1922, LVIII, 2.

A new diagnostic symptom in appendicitis. A. GREGORY. *Zentralbl. f. Chir.*, 1922, CIV, 367.

The indication for operation in acute appendicitis. G. LEXLUM. *Arch. franco-belges de chir.*, 1922, CIV, 366.

The posterior subileal incision in certain types of appendicitis. F. LEXLUM. *J. de chir.*, 1922, CIV, 430. [199]

The technique of appendectomy. B. HUIET. *Zentralbl. f. Chir.*, 1922, CIV, 364.

Embruing incision at invagination due to polypoidematosis of the large intestine. GERRIT. *Arch. franco-belges de chir.*, 1922, CIV, 372.

The surgery of anal tumors. A. H. HOEMANN. *Arch. f. Klin. Chir.*, 1922, CIV, 314. [198]

Sacroculitis of the colon which gave rise to a perforation of the ascending colon. H. DREUMANN. *Proc. Roy. Soc. Med. Lond.*, 1922, XV, Sect. Surg., 31.

A case of hamorrhagic cyst of the transverse mesocolon and also a consideration of the differential diagnosis and treatment of mesenteric cysts. H. NAUMANN. *Arch. f. Klin. Chir.*, 1922, CIV, 312. [196]

Carcinoma of the transverse colon resected under local anesthesia. J. WICKER. *Ann. Surg.*, 1922, LVII, 646.

A case of idiopathic partial rupture of the sigmoid colon with hamorrhage into the peritoneal cavity. R. SEUTHY. *Med. J. Australia*, 1922, I, 179.

Prognosis of the rectum. A. V. MOSCOWITZ. *Surg. Gynec. & Obst.*, 1922, XXIV, 586.

A successful non-surgical treatment of prolapse of the rectum. J. S. BULLER and B. H. BULLER. *Am. Med.*, 1922, XXIV, 368.

A case of malignant polypus of the rectum: ligation and removal, subsequent treatment with radium, signs of local recurrence, peritoneal carcinoma of the rectum. L. SHERBURY. *Proc. Roy. Soc. Med. Lond.*, 1922, XV, Sect. Surg., 43.

Carcinoma of the rectum. A. T. BATES. *Canadian M. Ass. J.*, 1922, IV, 384.

The diagnosis, prognosis, and treatment of carcinoma of the rectum. FENNELLSON. *Am. J. Clin. Med.*, 1922, VIII, 335.

Cancer of the rectum: views on etiology, symptomatology, and treatment based on the material of the Hochschule Chir., F. MANN. *Deutsche Zeitsch. f. Chir.*, 1922, CLXXII, 145. [197]

The operating cystoscope in the application of radium to cancer of the rectum following colostomy. J. O. BOWER. *Surg. Gynec. & Obst.*, 1922, XXIV, 730. [198]

Primary carcinoma in the blind bowel five years after cancer of the rectum. J. P. LOCKHART MUMFORD. *Proc. Roy. Soc. Med. Lond.*, 1922, XV, Sect. Surg., 35.

Complicated analomalous fistula, a case report. G. S. HANCO. *Kentucky M. J.*, 1922, II, 308.

Factors which influence results in rectal surgery. W. H. SEARFMAN. *J. Missouri State M. Ass.*, 1922, XIV, 114.

Imperforate anus with report of a case. A. I. McDONALD. *Am. J. Surg.*, 1922, XXVI, 715.

Hemorrhoids and their treatment. V. HERZEN. *Schweiz. Rundschau f. Med.*, 1922, VIII, 114.

The radical cure of hemorrhoids: modified Whitehead operation. J. O'CONNOR. *Brit. M. J.*, 1922, I, 719.

Funicular adhesion in the artificial anus. A. JENNEN. *Arch. franco-belges de chir.*, 1922, CIV, 363. [199]

Liver, Gall-Bladder, Pancreas, and Spleen

Blood pigment metabolism and its relation to liver function. C. M. JENSEN. *Arch. Int. Med.*, 1922, LXX, 643.

Non-parasitic cysts of the liver: report of a case. D. B. ALARAS. *J. Am. M. Ass.*, 1922, LXXVIII, 1505.

Lessened vital capacity of the lungs in a case of primary hepatic tumor with pulmonary metastases. R. M. McKEAS. *Am. J. M. Sc.*, 1922, XLIII, 716.

Hepatic jejunal anastomosis for destruction of the common duct. C. L. GIBSON. *Ann. Surg.*, 1922, LXXV, 629.

The Van den Burch test in the differentiation of obstruction from other types of jaundice. J. W. McNER. *Brit. M. J.*, 1922, I, 716.

Gall bladder disease. W. H. LEWIS. *J. Med. Ass. Georgia*, 1922, XI, 184.

Puerperal cholangitis. A. LAURENTIE. *Rev. franc. de gynéc. et d'obst.*, 1922, XXV, 193. [199]

The mucous type of hydrops of the gall-bladder due to obstruction of the cystic duct. C. DANIEL and A. BARDIS. *Presse méd. Par.*, 1922, XXX, 377. [199]

The diagnosis of gall-stones. H. J. LEHNHOFF. *Med. Herald*, 1922, XI, 139.

Acute perforation of the gall-bladder: report of two cases. L. FRANK. *Internat. J. Surg.*, 1922, XXXV, 133.

Surgery of the bile ducts. G. HOLTZ. *Schweiz. med. Wehnschr.*, 1922, II, 1214. [199]

Gall bladder surgery in obstructive jaundice. J. M. HYREM. *J. Oklahoma State M. Ass.*, 1922, XX, 147.

Complications following surgery of the gall bladder and bile ducts. W. C. CARROLL. *Minnesota Med.*, 1922, V, 307.

A case illustrating the advantages of cholecystectomy over cholecystostomy. R. P. ROWLANDS. *Proc. Roy. Soc. Med. Lond.*, 1922, XV, Clin. Sect., 22.

Morbus Banti and icterus. G. FALLIN. *Upsala Lackaref. Förel.*, 1922, XXVI, 18.

Non-parasitic cysts of the spleen and their significance in gynecology. E. E. PIERHAM. *Monatsschr. f. Geburtsh. u. Gynaek.*, 1922, LVII, 164.

Miscellaneous

Some uncommon abdominal emergencies. H. W. L. MOLLISWORTH. *Lancet*, 1922, VII, 943.

Penetrating abdominal wounds. N. WINNLOW. *Surg., Gynec. & Obst.*, 1922, XXIV, 617. [201]

Contribution to the clinical study of relaxation of the diaphragm. F. HENZLERS and W. UNVERRICHT. *Arch. f. path. Anat.*, 1922, CLXXXVII, 75.

Traumatic diaphragmatic hernia. C. B. KEENAN. *Ann. Surg.*, 1922, LXXV, 613. [201]

Strangulated diaphragmatic hernia of the left colon of traumatic origin. L. JEMTEL. *Arch. franco-belges de chir.*, 1922, XXV, 570. [201]

Subphrenic abscess. L. W. GROVE. *J. Med. Ass. Georgia*, 1922, XI, 197.

An unusual abdominal tumor. L. W. HEFFERMAN. *Indian M. Gaz.*, 1922, LVII, 180.

An inflammatory tumor of the abdomen. R. DUPONT. *J. de chir.*, 1922, CIV, 469. [201]

The present status of epilepsy. J. H. GIBSON and J. B. FLECK. *Ann. Surg.*, 1922, LXXV, 449. [202]

Mesenteric cysts and a case of lymphangioma of the mesentery. A. OHRLEIN. *Dissertation, Erlangen*, 1921.

Dorsal cysts of the mesentery. Tödenat. *Bull. et mémo. Soc. de chir. de Par.*, 1922, XLVII, 103. [202]

Amyloid tumors of the mesentery with general amyloid degeneration. M. FERRY. *Schweiz. med. Wehnschr.*, 1922, II, 301.

Anomalous abdominal membranes. A. S. TAYLOR. *Ann. Surg.*, 1922, LXXV, 313. [203]

The after-treatment of patients subjected to laparotomy, with special consideration of the Rehn sitting and upright positions. C. ROMM. *Klin. Wehnschr.*, 1922, I, 609.

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Spontaneous healing inherent in transplanted bone. S. L. HAAS. *J. Bone & Joint Surg.*, 1922, B.S.IV, 209. [204]
- Ameloblasts of the bones. C. A. KOFOD and O. SWEZY. *J. Am. M. Ass.*, 1922, LXXVIII, 1602.
- Growth problems following osteomyelitis of adolescent long bones. K. SPEED. *Surg., Gynec. & Obst.*, 1922, XXXIV, 469. [204]
- Castal osteomyelitis. P. PHILARDIAC. *Rev. d'orthop.*, 1922, XXIX, 38, 233.
- Acute hematogenous osteomyelitis. C. L. STARR. *Arch. Surg.*, 1922, IV, 567.
- Osteitis fibrosa cystica generalisata (von Recklinghausen). H. FLOHRCKEN. *Zentralbl. f. Chir.*, 1921, XLVIII, 1875.
- The generalized type of osteitis fibrosa cystica: von Recklinghausen's disease. J. J. MORTON. *Arch. Surg.*, 1922, IV, 534. [205]
- The nature and pathogenesis of osteitis deformans Paget. P. CAAN. *Beitr. z. klin. Chir.*, 1922, CXXV, 212. [206]
- Osteitis deformans or enchondroma? K. STETTNER. *Beitr. z. klin. Chir.*, 1921, CXXV, 414.
- Experimental rickets in rats. V. KORENCHESKY. *N. York M. J. & Med. Rec.*, 1922, CXV, 612.
- The use of the carbon arc light in the prevention and cure of rickets. A. F. HESS and L. J. UNGER. *J. Am. M. Ass.*, 1922, LXXVIII, 1596.
- A peculiar previously unknown form of multiple epiphyseal disturbances. B. VALENTIN. *Fortschr. a. d. Geb. d. Röntgenstrahlen*, 1922, XXIX, 120.
- Progress in bone and surgical tuberculosis. D. P. WILLARD. *Arch. Pediat.*, 1922, XXXIX, 327.
- A review and classification of bone sarcomata. J. EWING. *Arch. Surg.*, 1922, IV, 485. [207]
- Articular mobile bodies. A. FOILLIARD. *Chir. d. organi di movimento*, 1922, VI, 187.
- Arthritis and focal infection. H. SHILKOVSKY. *Am. Med.*, 1922, XXVII, 274.
- Observations on the metabolism of arthritis. R. L. CLELL, D. P. BARR, E. F. DUBOIS, G. F. SODERSTROM, and E. MARILL. *Arch. Int. Med.*, 1922, XXIX, 583.
- Symptomatology and treatment of certain types of chronic infectious arthritis. E. M. CROSS. *J. South Carolina M. Ass.*, 1922, XVII, 120.
- Notes on two cases of rheumatoid arthritis. A. M. FORBES. *Canadian M. Ass. J.*, 1922, XII, 331.
- Rheumatoid arthritis: recovery after being bedridden for four and a half years. A. F. HURST and A. OSMAN. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Clin. Sect., 20.
- The involvement of the bones in gonorrheal arthritis. KAMETZGER. *Therap. d. Gegenw.*, 1922, LXIII, 44.
- Ossification of the subacromial bursa. COCLOMB. *Rev. d'orthop.*, 1922, XXIX, 38, 231.
- Hygroma of the subdeltoid bursa. A. AVONI. *Chir. d. organi di movimento*, 1922, VI, 233.
- Epicondylitis of the humerus. G. EICHLER. *Dissertation*: Erlangen, 1921.
- Acute osteomyelitis: regeneration of the entire shaft of the humerus. F. G. NIFONG. *J. Missouri State M. Ass.*, 1922, XIX, 203.
- Traumatology of the carpus. A. H. BIZARRO. *Surg., Gynec. & Obst.*, 1922, XXXIV, 574.
- Tennis elbow. L. COOKE. *Med. Press*, 1922, N.S. CXIII, 443.

Is the Roser-Nélaton line necessary for the recognition of non-traumatic diseases of the hip joint? F. KINDT and H. WESKOTT. *Muenchen. med. Wchnschr.*, 1922, LXIX, 437.

The diagnosis and differential diagnosis of early hip-joint disease in childhood. J. T. RUGH. *Arch. Pediat.*, 1922, XXXIX, 323.

A case of arthritis of both hips. B. W. HOWELL. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Sect. Study Dis. Child., 16.

Traumatic hip case of industrial origin. J. N. BASHIN. *J. Med. Soc. N. Jersey*, 1922, XIX, 130.

Atypical forms of osteochondritis of the hip. NOVJ-JOSSERAND. *Rev. d'orthop.*, 1922, XXIX, 38, 193.

A case of spondylitis deformans and osteo-arthritis of both hip joints. C. M. PAGE. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Clin. Sect., 24.

Congenital defect of the femur and associated malformations. P. SPIESS. *Arch. f. orthop. u. Unfall-Chir.*, 1922, XX, 234.

Trigger knee joints. L. FROSCHE. *Arch. f. orthop. u. Unfall-Chir.*, 1922, XX, 276.

A study of injuries to the meniscus of the knee joint. STEINMANN. *Schweiz. Rundschau f. Med.*, 1922, XXII, 110.

Intrinsic derangement of the knee joint. M. S. HENDERSON. *Surg., Gynec. & Obst.*, 1922, XXXIV, 681.

A case of congenital curvature of the tibia. L. LA FERLA. *Chir. d. organi di movimento*, 1922, VI, 243.

Some common disabilities of the foot in general practice. G. P. MILLS. *Practitioner*, 1922, CVIII, 335.

Painful heel. W. F. STELL. *Practitioner*, 1922, CVIII, 345.

How to restore muscle power in paralytic conditions. T. TOEPEL. *J. Med. Ass. Georgia*, 1922, XI, 182.

Fractures and Dislocations

The management of compound fractures. J. O. MORGAN. *Internat. J. Surg.*, 1922, XXV, 165.

The question of the functional treatment of fractures. M. KRABBEL. *Beitr. z. klin. Chir.*, 1922, CXXV, 681.

The internal secretions and delayed union in fractures. G. MARSIGLIA. *Arch. ital. di chir.*, 1922, V, 197.

Pathologic fractures. E. A. CODMAN. *Surg., Gynec. & Obst.*, 1922, XXXIV, 611. [210]

Three unusual cases of fracture of the humerus. D. C. BOWIE. *J. Roy. Army Med. Corps, Lond.*, 1922, XXXVIII, 377.

Fractures of the humerus at the Zurich surgical clinic during the last twenty years (1890-1910); a clinical study and a study in accident surgery. K. SCHLAEPFER. *Arch. f. orthop. u. Unfall-Chir.*, 1922, XX, 135.

Premature ossification after separation of the lower epiphysis. M. K. SMITH. *Ann. Surg.*, 1922, LXXV, 501. [210]

The treatment of typical fracture of the radius. P. EDEN. *Arch. f. klin. Chir.*, 1921, CXVIII, 592.

Colles' fracture. L. O. HICKS. *Internat. J. Surg.*, 1922, XXXV, 167.

A case of luxation fracture of the first metacarpal with fracture of the multangulum majus. G. HALTER. *Arch. f. klin. Chir.*, 1921, CXVII, 761.

Traumatic luxation of the hip in infancy. G. ROELLO. *Chir. d. organi di movimento*, 1922, VI, 119.

Fractures of the shaft of the femur. T. T. THOMAS. *Pennsylvania M. J.*, 1922, XXV, 538.

- Fracture of the shaft of the femur. S. W. HANSON. *Internat. J. Surg.*, 1922, xxxv, 181.
- Inward dislocation of the patella. G. AHN. *J. Am. M. Ass.*, 1922, lxxviii, 1277.
- Patellar fractures. G. TRAMER. *Policlin.*, Rome, 1922, xix, no. 392, 809.
- The treatment of fracture of the patella. F. VAN DER HYDELM. *Fortachr. d. Med.*, 1922, xl, 174. [210]
- Congenital fracture of the leg. W. A. PULFAR and A. MURRAY. *Rev. d'orthop.*, 1922, xviii, 38, 155.
- Amputation for Colles' disease osteo-arthrosis of the foot. M. VASTANOV and J. MOUSSET. *Rev. d'orthop.*, 1922, xviii, 38, 147.
- The diagnosis of Shepherd's fracture. M. PATEL and M. P. JORDAN. *Rev. d'orthop.*, 1922, xviii, 38, 123.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

- The "loop" method of treatment, bone cavities and bone grafts. R. MORRISON. *Surg., Gynec. & Obst.*, 1922, lxxv, 843. [211]
- Some observations on bone grafting— with special reference to bridge grafts. C. M. PAGE and G. PERKINS. *Brit. J. Surg.*, 1922, ix, 120. [211]
- The technique of the wedge-shaped osteotomy. K. ZIMMERMAN. *Muenchen. med. Wchnschr.*, 1922, lxi, 467.
- The functional power of transplanted muscle. A. SAVI. *Ztschr. f. orthop. Chir.*, 1922, xlii, 129.
- The diagnosis and treatment of some common injuries of the shoulder joint. R. W. LOVETT. *Surg., Gynec. & Obst.*, 1922, xxxiv, 437. [212]
- Arthrodesis of the shoulder joint. W. ROKITZKI. *Verhandl. d. chir. Versam. Goe., Petrograd*, 1911.
- Deltoid paralysis and arthrodesis of the shoulder joint. G. F. STRAUB. *Surg., Gynec. & Obst.*, 1922, xxxiv, 476. [212]
- Substitution of the opponens pollicis muscle. H. KRECKENBERG. *Ztschr. f. orthop. Chir.*, 1921, xlii, 178. [213]
- Amputation stumps and their adaptation to artificial limbs. C. BEARSE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 547. [213]

- Lengthening of the quadriceps tendon. G. E. BENNETT. *J. Bone & Joint Surg.*, 1922, n.s. iv, 279. [214]
- Cases of acromioclavicular injury to the knee joint treated by incision and primary suture and cured with perfect functional results. R. SANCOS and E. STOLZ. *Rev. de chir., Par.*, 1922, xli, 134. [214]
- The comminutive plastic of the tibia in severe rachitic deformities with pseudarthrosis, also some remarks on the regeneration of bone. C. ROHDE. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 181.
- A new method of operative treatment of foot deformities. O. F. SCHULTZ. *J. Bone & Joint Surg.*, 1922, n.s. iv, 219. [215]
- A new method of operation for flat foot. A. WACHTER. *Ztschr. f. orthop. Chir.*, 1921, xlii, 158. [215]
- The treatment of talipes cavus. F. LACKNER. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 286.
- Astragaloctomy and backward displacement of the foot: an investigation of its practical results. A. WHITMAN. *J. Bone & Joint Surg.*, 1922, n.s. iv, 266. [216]
- A new method of astragaloctomy. E. DENTOT. *Rev. de chir., Par.*, 1922, xli, 131. [216]
- The treatment of congenital hallux varus. A. MACLENNAN. *Surg., Gynec. & Obst.*, 1922, xxxiv, 340. [216]
- Hallux valgus and metatarsalgia. A. HABICHT. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 314.

Orthopedics in General

- Report of progress in orthopedic surgery. M. N. SMITH-PETERSEN. *Boston M. & S. J.*, 1922, clxxvi, 605.
- Some recent advances in orthopedic surgery. E. L. EVANS. *Lancet*, 1922, cxli, 879.
- Difficulties encountered in orthopedic surgery. F. W. CARRUTHERS. *J. Arkansas M. Soc.*, 1922, xviii, 231.
- The teeth in relation to orthopedics. J. D. ADAMS. *Dental Cosmos*, 1922, lxi, 537.
- The diagnosis, prognosis, and early treatment of poliomyelitis. R. W. LOVETT. *J. Am. M. Ass.*, 1922, lxxviii, 1867.
- Modification of knee extension apparatus. L. R. ELLARS. *J. Am. M. Ass.*, 1922, lxxviii, 1458.

SURGERY OF THE SPINAL COLUMN AND CORD

- Corrective measures in disabilities of the back. W. B. FINE. *Nation's Health*, 1922, lx, 297.
- Some basic principles of the mechanical treatment of osteomyelitis. M. HONVATH. *Ztschr. f. orthop. Chir.*, 1922, xlii, 117.
- The question of school scoliosis. H. MAASS. *Med. Wchnschr.*, 1922, lxi, 674.
- Report of two cases of broken back. F. P. SOLOMON. *Internat. J. Surg.*, 1922, xxxv, 158.

- Fracture and dislocation of the second cervical vertebra in a child: a case report. R. T. PIRTLE. *Internat. J. Surg.*, 1922, xxxv, 162. [217]
- Fracture of the vertebrae. W. D. HAINES. *Cincinnati J. M.*, 1922, iii, 91.
- Fracture-dislocation of the spine treated by fusion. R. A. HIBBS. *Arch. Surg.*, 1922, lv, 598. [217]
- Clinical diagnosis of spinal cord tumors. J. E. ROYER. *Illinois M. J.*, 1922, xli, 347.

SURGERY OF THE NERVOUS SYSTEM

- Persistent pain. W. THORNTON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Neural, 22.
- Scleroderma following nerve injury: report of a case. I. B. KRAVITZ. *Arch. Dermat. & Syph.*, 1922, v, 179.
- The late paralysis of the ulnar nerve following fractures of the distal extremity of the humerus. G. LUSANA. *Chir. d. organ. di movimento*, 1922, xi, 132. [217]
- Freezing of the sciatic and saphenous nerves in painful angioneurotic conditions of the lower extremities. A. LAEVEN. *Muenchen. med. Wchnschr.*, 1922, lxi, 189. [218]

- A case of Erb's paralysis following an operation for torticollis. H. BIESCKE. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 321.
- A case of paralysis of the upper plexus (Duchenne-Erb paralysis) following operation for torticollis. H. ESNER. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 61. [218]
- Surgical treatment of non-traumatic sciatica. H. H. ZENTRAHL. *Chir.*, 1921, cxviii, 1809. [219]
- The end results of the Stiefel operation in cases of spastic paralysis. A. B. GILL. *Arch. Pediat.*, 1922, xxxix, 100. [219]

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Surgical shock. J. D. MALCOLM. Med. Press, 1922, n. 8, cclii, 490.

Microscopic examination of the brain in cases of "surgical shock." F. W. MOTT and T. UNO. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Neurol., 25.

The genesis and therapy of true tumors. A. LUEBBERT and H. LUEBBERT. Hamburg Behre, 1922. [220]

A basis for the prevention of cancer: recognition that injury, inflammation, and irritation are important factors in its causation. W. M. L. COPLIN. J. Am. M. Ass., 1922, lxxviii, 1303.

Protein sensitization as a possible cause of epilepsy and cancer. J. F. WARD. N. York M. J. & Med. Rec., 1922, cxv, 392.

The sociological aspects of cancer and the obligation of the medical profession to perfect itself in early diagnosis. P. H. MCGOVERN. Wisconsin M. J., 1922, xx, 600.

Symposium on cancer. B. H. SCHLOMOVITZ. Wisconsin M. J., 1922, xx, 509.

A precancerous lesion of the lip. G. ANZILOTTI. Riforma med., 1922, lxxviii, 471.

Carcinoma cutis—a diagnostic outline. H. R. FOERSTER. Wisconsin M. J., 1922, xx, 619.

The results of the treatment of sarcoma during the last twenty years. A. MERTENS. Dissertation, Erlangen, 1921.

The prognosis of sarcoma of the vertebral column. N. GULEKE. Arch. f. Psychiat., 1922, lxx, 197.

Addison's disease with anemia treated by supra-renal grafting. A. F. HURST, W. E. TANNER, and A. A. OSMAN. Proc. Roy. Soc. Med., Lond., 1922, xv, Clin. Sect., 19.

Rare location of an echinococcal cyst. L. BACCARINI. Policlin., Rome, 1922, xxix, sez. prat., 676.

A rare localization of the echinococcus. G. ROMANA. Policlin., Rome, 1922, xxix, sez. prat., 678.

Protein treatment in theory and practice. S. BELFANTI. Policlin., Rome, 1922, xxix, sez. prat., 602.

A method of treating abscesses. T. H. KELLOCK. Lancet, 1922, ccli, 990.

The surgical complications of gripe. A. SALINGER. Therap. d. Gegenw., 1922, lxxii, 55.

Some thoughts on carbuncle. W. A. OPPEL. Nauteschaja med., 1922, 703.

A variety of benign suppurative paradenolymphitis of septicemic type and its relation to subacute inguinal lymphogranulomatosis. RAVAUT, BOULIN, and RABEAU. Presse med., Par., 1922, xxx, 453. [220]

The etiology and pathogenesis of an epidemic of inguinal lymphadenitis. V. VANNI. Riforma med., 1922, lxxviii, 435.

Aleppo boil; also called Delphi boil, Kandahar sore, oriental sore. A. K. YOUSUF. Boston M. & S. J., 1922, clxxvi, 675.

A meningitis produced by an anaerobic bacterium; a contribution to the bacteriology of pathogenic anaerobes. F. FREUND. Zentralbl. f. Bakteriol., 1922, lxxxviii, 9.

Impending and real gangrene associated with diabetes: correlation of medical and surgical report. B. M. BERNHEIM. Am. J. M. Sc., 1922, clxiii, 625.

Sera, Vaccines, and Ferments

Non-specific protein therapy. E. AILSWEDGE. Arch. Dermat. & Syph., 1922, v, 586.

Heat and growth-inhibiting action of serum. A. CARREL and A. H. EDELING. J. Exper. M., 1922, xxxv, 647. [220]

Vaccine therapeutics. V. D. FARMER. Med. Times, 1922, i, 134.

Further researches on detoxicated vaccines. D. THOMSON and R. THOMSON. Brit. M. J., 1922, i, 796.

Blood

Types of severe anemia. A. STENGEL. Illinois M. J., 1922, xli, 374.

Large blood transfusions in pernicious anemia. H. F. HÖST. Norsk Mag. f. Lægevidensk., 1922, lxxxiii, 103.

Blood transfusion. HOTZ. Zentralbl. f. Chir., 1921, xlviii, 1853.

Acacia for transfusion. W. M. BAYLISS. J. Am. M. Ass., 1922, lxxviii, 1885.

Experiences with the Oehlecker technique of blood transfusion in surgical cases. E. HEMPEL. Deutsche med. Wchnschr., 1922, xlviii, 316, 352.

Blood and Lymph Vessels

The clinical manifestations of arteriosclerosis. H. B. ANDERSON. Canadian Pract., 1922, xlvii, 194.

The treatment of vascular naevi. E. H. MOLESWORTH. Med. J. Australia, 1922, i, 576.

Brachial monoplegia due to thrombosis of the subclavian vein. G. WILSON. Am. J. M. Sc., 1922, clxiii, 899. [221]

A case of subclavian aneurism with cervical ribs. C. A. MOORE. Lancet, 1922, ccii, 1045. [221]

An arteriovenous aneurism treated by ligation of the left subclavian artery. C. NOON. Brit. M. J., 1922, i, 714.

A spontaneous true exo-extra-cranial aneurism of the left internal carotid artery. G. CANNUTT. Arch. franco-belges de chir., 1922, xxv, 399. [222]

Aneurisms of the thoracic aorta involving the lung. J. FANNING. Brit. M. J., 1922, i, 758.

Syphilitic aortic aneurism. E. J. STOLKIND. Med. Press, 1922, n.s. cxliii, 466.

Aortic dilatation and aneurism. W. WILSON. Canadian M. Ass. J., 1922, xii, 283.

A new operative technique for varicocele. A. GREGORY. Zentralbl. f. Chir., 1922, xlix, 369.

Palpation of the popliteal artery. L. W. SILBERBERG. Moderne Med., 1921, i, 13. [222]

A large mycotic aneurism of the femoral artery developing during the course of subacute infectious endocarditis and requiring ligation to prevent rupture. D. L. FARLEY and G. W. NORRIS. Bull. Ayer Clin. Lab. Pennsylvania Hosp., Phila., 1922, 57.

Incision of the thrombosed femoral artery in beginning gangrene of the extremity: cure. M. FABANO. Arch. ital. di chir., 1922, v, 307. [223]

An additional contribution to the subject of lymph drainage in elephantiasis of the leg. W. HAUBENREISSER. Zentralbl. f. Chir., 1922, xlix, 474.

General Bacterial Infections

A clinical study of typhus fever; the surgical complications of typhus fever. R. HERZENBERG. Arch. f. klin. Chir., 1922, cxix, 347.

Surgical Diagnosis, Pathology, and Therapeutics

The present status of observation as a clinical art. R. A. KILMER. *J. Am. M. Ass.*, 1922, *lxviii*, 1439.

The value of blood chemistry to the surgeon. W. H. BAILEY. *South. M. J.*, 1922, *xxv*, 394.

The interpretation of the Wassermann reaction. S. WALLINGFELD. *N. York M. J. & Med. Rev.*, 1922, *cxv*, 334.

Calculations in basal metabolism determinations. J. H. SMITH and M. C. SMITH. *Boston M. & S. J.*, 1922, *lxxvii*, 561.

The value of spinal fluid examination. C. E. KIRBY. *Ohio State M. J.*, 1922, *xviii*, 309.

In behalf of the stomach tube. R. FITZ. *J. Am. M. Ass.*, 1922, *lxviii*, 1445.

The significant signs in acute surgical diseases in children. I. M. KARS. *N. York M. J. & Med. Rev.*, 1922, *cxv*, 634.

The differential diagnosis of acute abdominal pain. F. T. FORT. *Kentucky M. J.*, 1922, *xx*, 239.

Injuries of the abdominal and pelvic organs. M. BARONAS. *Beitr. z. klin. Chir.*, 1922, *ccxv*, 634.

The results of the treatment of chronic tuberculosis and the sequelae of war injuries treated with the ultra-violet rays and quartz-lamp radiation. I. I. TSCHERNOMSKAJA. *Nachtshanz Med.*, 1922, *ii*, 85.

Isodermia in the treatment of malignant diseases. F. J. STEWARD. *Practitioner*, 1922, *cxviii*, 328.

Experimental Surgery and Surgical Anatomy

Experimental investigation of the cause of diaphragmatic relaxation. K. KURE, T. HIRAMATSU, K. TAKAGI, M. NAKAYAMA, and S. MATSUI. *Zitsch. f. d. ges. exper. Med.*, 1922, *xvii*, 164.

The comparative results of the ligation of the hepatic artery in animals: its application to man. M. BEIKEND, H. E. KRAACH, and A. G. KERSHNER. *Arch. Surg.*, 1922, *lv*, 691. [223]

Postoperative peritoneal adhesions; an experimental study. C. S. WILLIAMSON and F. C. MANN. *Surg., Gynec. & Obst.*, 1922, *xxiv*, 774. [223]

The reaction of animal tissues to the introduction of pieces of rubber. C. VACCARI. *Arch. Ital. di chir.*, 1922, *v*, 417.

Craturation of wounds: the temperature coefficient. A. H. FRITLING. *J. Exper. M.*, 1922, *xxv*, 657. [224]

Some problems of surgery connected with questions of regeneration. W. SCHACK. *Verhandl. d. russ. chir. Pansgill Ges.*, Petrograd, 1922. [224]

The anatomy of the stomach. J. TANDLER. *Wien. med. Wochenschr.*, 1922, *lxvii*, 333.

Roentgenology and Radium Therapy

A protective glove rack. R. G. VAN NUYS. *Am. J. Roentgenol.*, 1922, *n. s.*, ix, 314.

The correlation of X-ray interpretations with clinical findings and end results in railway surgery. F. T. NEWELL. *South. M. J.*, 1922, *xxv*, 400.

Sensibility and its increase in radiotherapy. F. VOLTZ. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, *xxix*, 61.

Practical applications of ionization measurements of X-rays. A. W. KERRICK. *J. Radiol.*, 1922, *iii*, 159.

Errors in dosimetry in deep roentgen therapy with the use of the "tension-hardness meter" on induction apparatus and their prevention. E. SIEHMPF. *München. med. Wochenschr.*, 1922, *lxix*, 429.

Basic observations on the technique of the irradiation of large field areas. W. UYER. *Zentralbl. f. Gynæk.*, 1922, *xvii*, 239.

The Chladni's method for the utilization of secondary rays in roentgen therapy. C. GUARINI. *Riforma med.*, 1922, *xxviii*, 357.

The present status of deep roentgen-ray therapy in Europe. W. H. STEWART. *Am. J. Roentgenol.*, 1922, *n. s.*, ix, 313.

The practical use of diffuse irradiation in deep roentgenotherapy. RATTIER. *Sigla méd.*, 1922, *lxix*, 335.

The value and limits of deep radiotherapy. M. PONZIO. *Riforma med.*, 1922, *xxviii*, 411.

Some misconceptions in deep therapy, or X-ray and radium therapy versus X-ray or radium therapy. C. H. STARR. *Southwest J. M. & S.*, 1922, *xxx*, 5.

The treatment of malignant disease by radiation. H. C. NOTE. *Med. J. Australia*, 1922, *i*, 367.

The general indications for the X-ray treatment of malignant tumors. V. SCHMIDEN. *Strahlentherapie*, 1922, *xiii*, 431.

Personal observations regarding the newer roentgen technique for the treatment of cancer. J. H. SCHROEDER. *Ohio State M. J.*, 1922, *xviii*, 345.

Deep X-ray treatment of malignant tumors and of external tuberculous lesions. H. HOFFELDER. *Strahlentherapie*, 1922, *xiii*, 438.

General observations on the roentgen treatment of surgical tuberculous lesions in children. A. KOHLER. *Kindertuberkulose*, 1922, *ii*, 12.

Treatment of diphtheria carriers by means of the roentgen ray. P. M. HICKBY. *Am. J. Roentgenol.*, 1922, *n. s.*, ix, 319.

Under what conditions is X-ray treatment of cancer of the skin indicated? W. BROCK. *Strahlentherapie*, 1922, *xiii*, 1.

Erroneous surgico-roentgenologic diagnoses of bone diseases; advances since the report of Rumpel's work, 1908. R. KIENBOECK. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, *xxix*, 81.

The roentgen treatment of brain tumors. S. NORDENTORP. *Ugesk. f. Laeger*, 1922, *lxxiv*, 73.

The X-ray treatment of visual disturbances due to tumors of the hypophysis. F. TERRIEN. *Presse méd., Par.*, 1922, *xxx*, 429. [225]

An original method for the lantern-slide projection of roentgen ray films of the mastoid. N. H. PIERCE. *J. Am. M. Ass.*, 1922, *lxxviii*, 1329.

The treatment of malignant neoplasms of the tonsils. D. QUICK. *J. Radiol.*, 1922, *iii*, 175.

A case of toxic goiter apparently successfully treated with the X-ray. W. D. STROUD. *Bull. Ayer Clin. Lab. Pennsylvania Hosp.*, Phila., 1922, 85.

Fractures of the carpal scaphoid. A. M. PFEFFER. *J. Radiol.*, 1922, *iii*, 179.

Irradiation treatment in laryngology. G. SPIESS. *Strahlentherapie*, 1922, *xiii*, 319.

The roentgen-ray diagnosis of non-opaque foreign bodies in the air passages. W. F. MANNING. *Am. J. Roentgenol.*, 1922, *n. s.*, ix, 288.

A practical method of roentgen examination of the heart based upon a study of 100 consecutive normal and abnormal cases. R. G. KERSHNER and R. H. KENNICOTT. *Am. J. Roentgenol.*, 1922, *n. s.*, ix, 305.

Stereoscopic roentgenography for the demonstration of intrapleural, intra-abdominal, and diaphragmatic changes. T. NAGELI and H. CRAMER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, *xxix*, 59.

X-ray diagnosis of gastric ulcer. O. A. AMBROSIO. *Missouri State M. Ass.*, 1922, *xix*, 212.

Irradiation necrosis of the intestine. B. FISCHER. *Strahlentherapie*, 1922, xiii, 333.

Errors in the roentgenological diagnosis of duodenal ulcer. R. D. CARMAN. *J. Radiol.*, 1922, iii, 163. [225]

Roentgen rays and radium in the diagnosis and treatment of carcinoma of the prostate. H. C. BUMPUS. *Am. J. Roentgenol.*, 1922, n.s. ix, 269.

Biliarradiosis of the urinary system and its roentgenologic diagnosis. LOTSY. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxviii, 569.

Carcinoma and stimulative radiotherapy of the spleen. F. VON DER HUETTEN. *Strahlentherapie*, 1921, xiii, 197.

High-frequency currents and roentgenotherapy in vesical tumors. G. KOLISCHER and H. KATZ. *J. Am. M. Ass.*, 1922, lxxviii, 1598.

Experiences with the roentgen treatment of genital and extragenital sarcomata. L. SEITZ and H. WINTZ. *Deutsche med. Wchschr.*, 1922, xlviii, 345.

Pneumoperitoneum of the organs in the abdominal cavity after operations; preliminary report. L. POPOVIC. *Liječ. vjesnik*, 1922, xlv, 11.

The diagnostic and therapeutic value of pneumoperitoneum in postoperative adhesions after laparotomies. W. FELDHAHN. *Zentralbl. f. Gynæk.*, 1922, xvi, 262.

Radium—its sources and uses. E. L. BERNAVS. *Nation's Health*, 1922, iv, 277.

Radium and roentgen therapy in malignancy: indications, contra-indications, limitations, and recent developments. A. U. DESJARDINS. *J. Radiol.*, 1922, iii, 226. [226]

Inoperable malignant tumors suitable for the use of radium and the method of its employment. H. KURTZAHN. *Strahlentherapie*, 1921, xiii, 72.

The value of radium in the treatment of malignant neoplasms. R. H. JACKSON. *Wisconsin M. J.*, 1922, xx, 624.

A report of radium cases of the head and neck. A. C. JONES. *Northwest Med.*, 1922, xxi, 140.

Cancer of the lip treated by radiation or combined with electrocoagulation and surgical procedures. G. E. PFÄHLER. *J. Radiol.*, 1922, iii, 213. [227]

Tumors involving the oral cavity, upper respiratory passages, and ears, and some observations following the use of radium. M. ARMSTRONG. *J. Iowa State M. Soc.*, 1922, xii, 187.

Recent experience with radium in malignant disease of the esophagus and upper respiratory tract. H. H. FORBES. *Boston M. & S. J.*, 1922, clxxxvi, 705.

Radium in cancer of the prostate: a report of 217 cases. H. C. BUMPUS, JR. *J. Am. M. Ass.*, 1922, lxxviii, 1374. [227]

Industrial Surgery

Industrial medicine in California; a statement of the problems. G. W. GOODALE. *California State J. M.*, 1922, xx, 149.

Hospitals; Medical Education and History

The organized or closed staff: its advantages and possibilities. J. B. FRANKLIN. *South M. J.*, 1922, xv, 415.

Dispensary development, with especial reference to the outpatient department of the Massachusetts General Hospital. P. D. WHITE. *Boston M. & S. J.*, 1922, clxxxvi, 693.

The use of the outpatient department as a teaching field for interns. M. M. DAVIS, JR. and G. E. STURGES. *J. Am. M. Ass.*, 1922, lxxviii, 1435.

Medicine and surgery in early mediaeval England. B. WINDLE. *Canadian Pract.*, 1922, xlvii, 181.

The trend of the practice of modern medicine. F. BILLINGS. *J. Am. M. Ass.*, 1922, lxxviii, 1503.

Oration in surgery—do we progress? W. A. ROHLF. *J. Iowa State M. Soc.*, 1922, xii, 169.

A retrospect and a record: an earnest of the future. G. E. DE SCHWEINITZ. *J. Am. M. Ass.*, 1922, lxxviii, 1583.

Annual oration—address on surgery. J. B. DEEVER. *N. York State J. M.*, 1922, xxii, 197.

Legal Medicine

Abnormal and unknown conditions and representations of good health. Eastern District Piece Dye Works, Inc. vs. Travelers Ins. Co. (N. Y. O., 190 N. Y., Supp., p. 822. [228]

Breaking of needle and not advising seeing expert. Benson vs. Dean (N. Y.), 113, N. E. R., p. 125. [229]

Physician not "immediately" disabled by accident. Herwig vs. Business Men's Acc. Assn. of America (Mo.), 234 S. W. R., p. 853. [230]

Evidence of malpractice in pregnancy case sufficient to go to jury. Rainey vs. Smith et al. (Kan.), p. 201. [230]

Injury and pre-existing disease under Workmen's Compensation Act. Springfield District Coal Mining Co. vs. Industrial Commission et al. (Ill.), 132 N. E. R., p. 759. [230]

Not liable for using roentgen-ray static machine. Street vs. Hodgson (Md.), 115 Atl. R., p. 27. [230]

Physician's report not enough to sustain an award. Stimal vs. Jewett & Co. et al. (N. Y.), 190 N. Y., Supp., p. 889. [231]

GYNECOLOGY

Uterus

Malformations of the uterus: with clinical reports. H. A. ROYSTER. *Am. J. Surg.*, 1922, xxxvi, 110.

Double uterus and vagina. D. HADDEN. *Am. J. Obst. & Gynec.*, 1922, iii, 526.

Two cases of ruptured uterus. G. FITZGIBBON. *Med. Press*, 1922, n.s. cxliii, 400.

Lacerations of the cervix involving the lower uterine segment and the fornix, with illustrative cases. R. A. LENNIE. *Glasgow M. J.*, 1922, n.s. xv, 257.

The importance of the utero-sacral ligaments in uterine prolapse. C. E. THELANDER. *Med. J. Australia*, 1922, i, 571.

Focal infection of the cervix. B. FRIEDLAENDER. *Internat. J. Surg.*, 1922, xxxv, 158.

Acute mercurial poisoning from vaginal injection. M. C. SEXTON. *J. Am. M. Ass.*, 1922, lxxviii, 1445.

Uterine hemorrhage. T. S. CULLEN. *J. Am. M. Ass.*, 1922, lxxviii, 1592. [232]

Continuous uterine hemorrhage of three years' duration in a girl of 17 years, cured by one application of radium. D. Y. KEITH. *Kentucky M. J.*, 1922, xx, 365.

The pathogenesis of myomata of the female genital organs. A. ROSNER. *Gynec. et obst.*, 1922, v, 358.

Adenomyoma of the uterus invading the rectovaginal septum and the pelvic colon. W. E. MILES. *Proc. Roy. Soc. Med. Lond.*, 1922, xv, Sect. Surg., 39.

Diffuse adenomyoma of the uterus: conditions influencing its development. O. H. SCHWARTZ and F. F. McNALLY. *Am. J. Obst. & Gynec.*, 1922, 61, 437.

The irradiation therapy of myomata and hemorrhagic metrometastases since the year 1914: a collective report. R. SCARON. *Strahlentherapie*, 1922, 308, 904.

Radium treatment of myoma of the uterus and myo-papillary bleeding: final results in 123 cases. C. J. MILLER. *Surg., Gynec. & Obst.*, 1922, xxxv, 293. [232]

Extensive injury to the urinary bladder during an operation for uterine fibroid. C. FARMER. *Kentucky M. J.*, 1922, 8, 396.

The fight against cancer of the uterus. P. CARLINI. *Ginecologia*, 1922, 1, 2.

The end results following operative and irradiation treatment of carcinoma of the uterus and vagina. A. GRUNGER. *Arch. f. Gynaek.*, 1922, lxxv, 429. [233]

The phytolacca moss in the healing of baso-cellular epithelioma of the cervix after treatment with radium. F. DALL. *Vlaamsche geneesk. Tijdschr.*, 1922, ii, 585.

Radiotherapy of carcinoma of the cervix of the uterus. A. DUMMERLIS. *München. med. Wchnschr.*, 1922, lxxv, 211.

Radiation treatment of uterine cancer. A. F. TYLER. *Nebraska State M. J.*, 1922, viii, 107.

X-ray treatment of carcinoma of the uterus and the limits within which it is indicated as preferable to surgical treatment. W. WEINER. *Wien. med. Wchnschr.*, 1922, lxxv, 81.

Adnexal and Peri-Uterine Conditions

The primary and late results of surgically treated tumors of the adnexa as seen during a period of five years. A. PRONTERA. *Zentralbl. f. Gynaek.*, 1922, xlv, 167.

Autografting of the ovary. J. H. MAZER. *Boston M. & S. J.*, 1922, cxxxvi, 604. [233]

Implantation of a part of an ovary into a horn of the uterus in order to preserve the functions of ovulation and menstruation. W. E. ELLIS. *Med. Times*, 1922, 1, 117. [233]

Disturbance of ovarian secretion, a probable cause of the development of a hemorrhagic tendency, completely castrated ovary; diffuse adenomyomatosis of the uterus. A. H. CORTIS. *Surg., Gynec. & Obst.*, 1922, xxxv, 687.

The surgery of non-hyperplastic ovarian cysts. C. A. ROBERT. *J. Am. M. Ass.*, 1922, lxxviii, 1451. [234]

Transuterine insemination, a diagnostic aid in sterility. A. J. FOWY and S. S. ROSENFIELD. *Am. J. Obst. & Gynec.*, 1922, 61, 295. [234]

Two cases of ectopic gestation, one of chronic pyloric ulcer. L. W. FRANK. *Kentucky M. J.*, 1922, 8, 349.

Congenitally ruptured ectopic gestation and acute suppurative appendicitis. C. E. RUTH. *Am. J. Obst. & Gynec.*, 1922, 61, 325.

An unusual case of extra-peritoneal abdominal pregnancy. D. M. LEROY. *Gaquet M. J.*, 1922, n. s. xv, 273.

Myoma of the fallopian tube: a case report. C. W. HIPPEN. *Am. J. Surg.*, 1922, xxxv, 117.

Primary carcinoma of the fallopian tube, a dermoid cyst expelled from the uterus during labor. J. L. BAER. *Surg., Gynec. & Obst.*, 1922, xxxv, 685.

External Genitalia

Puerperal atresia of the vagina; coitus-dilatation of the urethra. C. STANCA. *Zentralbl. f. Gynaek.*, 1922, xlv, 1785. [235]

Congenital absence of the vagina accompanied by marked nervous symptoms: Baldwin's operation and the removal of ovarian tissue. T. WRIGHT. *Am. J. Surg.*, 1922, xxxvi, 114.

Adenomyoma of the rectovaginal septum showing dermoid reaction. C. D. LOCHRANE. *Proc. Roy. Soc. Med., Lond.*, 1922, xix, Sect. Obst. & Gynec., 34.

Miscellaneous

Some unsolved physiological problems in gynecology and obstetrics. R. W. JOHNSTONE. *Edinburgh M. J.*, 1922, xxviii, 198.

Pseudomyxoma peritonei. E. NOVAK. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 182. [235]

The endocrines in gynecology. J. F. OWENS. *Med. Herald*, 1922, xli, 111.

The treatment of the menorrhagia of girls with black willow buds. I. L. VAN ZANDT. *Texas State M. J.*, 1922, xviii, 42.

An attempt to apply ionotherapy in gynecological diseases. W. F. DEMSKAJA. *Nautschina Med.*, 1922, 306. [235]

Modification of the indications for operative interference in gynecology imposed by present day radium therapy. R. E. SKEEL. *Northwest Med.*, 1922, xxi, 131.

Conservative surgery of the female pelvic organs. A. G. SHELLITO. *J. Iowa State M. Soc.*, 1922, xii, 120.

A lecture to graduates on three years of pelvic surgery. W. E. FOTHERGILL. *Brit. M. J.*, 1922, i, 830.

Urethro-perineal urinary fistula. FONSECA. *J. d'urolog. med. et chir.*, 1922, xiii, 249.

The removal of a foreign body of unusual length after eight years. J. WAGNER. *Internat. J. Surg.*, 1922, xxxv, 137. [235]

Symptoms and diagnosis of cancer of the female generative tract. J. P. McMAHON. *Wisconsin M. J.*, 1922, xx, 608.

The treatment of gonococcal infection in the lower genital tract of female infants and young girls. C. C. NORRIS and H. B. MINKELBERG. *Arch. Pediat.*, 1922, xxxix, 181.

OBSTETRICS

Pregnancy and Its Complications

A study of the blood during pregnancy and labor. BUCHNER, CROLOW, and LANTHOFER. *Gynec. et obst.*, 1922, 9, 24.

Pernicious vomiting of pregnancy. C. OLDFIELD. *Brit. M. J.*, 1922, i, 262.

The use of lithium solution hypodermatically for the control of nausea and vomiting of pregnancy. T. COPPEY. *Am. J. Obst. & Gynec.*, 1922, 61, 313.

The treatment of hyperemesis gravidarum by the duodenal tube. C. E. PADDOCK. *J. Am. M. Ass.*, 1922, lxxviii, 1611.

Cardiac disease complicating pregnancy and labor. C. R. HANNAH. *Texas State M. J.*, 1922, xxvi, 41.

Glycosuria in pregnancy. R. L. M. WALLIS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Obst. & Gynec., 31.

Hemorrhage during the early months of pregnancy. R. Y. SULLIVAN. *Am. J. Obst. & Gynec.*, 1922, 61, 320.

- Placenta previa: report of two cases. E. SPIDEL. Kentucky M. J., 1922, xx, 177.
- Treatment of placenta previa. F. H. COOKSHAM. Pacific Coast J. Hosp., 1922, xxxiii, 147.
- Cervical polyp-like indurated of the cervix toward the end of pregnancy. J. ROOYER. Gynec. et obst., 1922, v, 374.
- The care of pregnancy and labor in patients previously delivered by cesarean section. J. T. WILLIAMS. Boston M. & S. J., 1922, clxxxvi, 392.

Labor and Its Complications

- Childbirth—primitive versus modern. C. H. DAVIS. Surg. Gynec. & Obst., 1922, xxxiv, 636.
- Spontaneous labor occurring through an obliquely contracted, kyphotic, funnel pelvis. J. W. WILLIAMS. Bull. Johns Hopkins Hosp., 1922, xxxiii, 190.
- A difficult obstetrical case after ventro-fixation of the uterus. L. W. HETTERMAN. Indian M. Gaz., 1922, lvii, 179.
- Pituitrin in obstetrics. C. H. CLEVELAND. New Orleans M. & S. J., 1922, lxxiv, 700.
- "Avalanche" labor and rupture of the vulvar orifice after two injections of pituitrin. J. AUDEBERT. Rev. franç. de gynéc. et d'obst., 1922, xvii, 157.
- Abruptio placentæ (uteroplacental apoplexy). L. DORSETT. J. Missouri State M. Ass., 1922, xix, 223.
- Potter version: its indications and contra-indications. W. J. HARMAN. J. Med. Soc. N. Jersey, 1922, xix, 128.

- The indications and technique of the cesarean operation. F. MAGALHAES. Gynec. et obst., 1922, v, 345.
- Four cesarean operations on one patient. H. THOMS. Am. J. Obst. & Gynec., 1922, iii, 529.
- The newer methods of cesarean section. J. B. DE LEE. Illinois M. J., 1922, xli, 341.
- The present status of operative obstetrics referring to the abuse of cesarean section. J. O. POLAK and A. C. BECK. Surg., Gynec. & Obst., 1922, xxxiv, 566.

Puerperium and Its Complications

- Paralysis of the leg following labor: a case report. F. C. SIMPSON. Kentucky M. J., 1922, xx, 342.

Miscellaneous

- The progress of obstetrics. W. W. WELLS. J. Oklahoma State M. Ass., 1922, xv, 149.
- Some obstetrical problems of a country doctor. G. M. BAKER. Illinois M. J., 1922, xli, 357.
- End-results in obstetrics. C. J. ANDREWS. Am. J. Obst. & Gynec., 1922, iii, 502.
- The indications for the management of the cord stump afforded by study of the physiology of the navel in the newborn. P. WILLSON. Am. J. Obst. & Gynec., 1922, iii, 506.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

- On the relationship between the adrenal gland and the thyroid. F. A. C. SCRIMGER. Canadian M. Ass. J., 1922, xli, 316.
- Contributions to the question of the clinical significance of accessory renal vessels. G. PETREN. Beitr. z. klin. Chir., 1922, cxlv, 493.
- A case of renal dwarfism. D. PATERSON. Lancet, 1922, ccl, 444.
- Transperitoneal nephropexy. T. B. NOBLE. Am. J. Obst. & Gynec., 1922, iii, 403.
- The value of tests for renal function in clinical medicine. H. O. MOSENTHAL. Ohio State M. J., 1922, xviii, 348.
- Discussion on renal efficiency. C. CLARKE, J. O. SYMES, and G. HADFIELD. Bristol M.-Chir. J., 1922, xxxix, 13.
- Tests of kidney function. M. F. MORRIS. N. York M. J. & Med. Rec., 1922, cxv, 538.
- A life-saving nephrostomy in acute urinary retention. K. HANSEN. Ztsch. f. urol. Chir., 1922, viii, 172.
- Nephrotomy and decapsulation for anuria in a case of single kidney; recovery. S. S. LEOPOLD and M. BEHREND. Surg., Gynec. & Obst., 1922, xxxiv, 677. [237]
- Urine examination as an index of renal disease. H. W. JONES. N. York M. J., 1922, cxv, 531.
- Kidney study. J. P. PROCTOR. J. Med. Ass. Georgia, 1922, xi, 169.
- The effect of silver arsenamine on the kidney. D. M. SIDLICK and M. L. MALLAS. N. York M. J. & Med. Rec., 1922, cxv, 540.
- Pyelography. F. KIDD. Brit. M. J., 1922, i, 748.
- A harmless technique for pyelography. A. VON LICHTENBERG. Ztschr. f. urol. Chir., 1921, viii, 24.
- Infection of the kidney. W. C. QUINBY. N. York M. J., 1922, cxv, 520.
- Nephritis in children. G. BOYD. Am. J. Dis. Child., 1922, xviii, 373.

- The correlation of clinical and pathologic findings in nephritis. P. F. MORSE. Am. J. M. Sc., 1922, clxiii, 697.
- The relation that exists between hypertension, myocarditis, and nephritis. H. A. CHRISTIAN. J. Iowa State M. Soc., 1922, xii, 171.
- Suppurative nephritis in children. E. L. BAUER. Arch. Pediat., 1922, xxxix, 329.
- Pyelitis. A. E. SOMMER. Minnesota Med., 1922, v, 316.
- Atrophic pyelonephritis. W. F. BRAASCH. J. Urol., 1922, vii, 247. [237]
- Congenital hydronephrosis. A. I. FOLSOM. South. M. J., 1922, xv, 399.
- Hydronephrosis due to aberrant renal artery. E. C. BEVERS. Brit. M. J., 1922, i, 718.
- A case of intermittent hydronephrosis due to kinking of the right ureter by an accessory renal artery. W. W. BEATTY. Canadian M. Ass. J., 1922, xii, 533.
- Restoration of function in hydronephrosis. O. S. FOWLER. Colorado Med., 1922, xix, 103.
- The importance of roentgen examination in the early diagnosis of renal calculus. W. H. SCHMIDT. N. York M. J., 1922, cxv, 533.
- A case of bilateral renal lithiasis; considerations regarding its treatment. G. PEDRESO and G. LEQUERICA. Arch. d. Hosp. Municipal de la Habana, 1922, i, 15.
- Solitary cysts of the kidney. C. HARMS. Beitr. z. klin. Chir., 1922, cxiv, 688.
- Neoplasia of the kidney. J. E. DAVIS. Am. J. Obst. & Gynec., 1922, iii, 478.
- A case of hypernephroma of the kidney. G. CHAND. Indian M. Gaz., 1922, lvii, 179.
- Studies of malignant tumors of the kidney. L. J. LINDSTROM. Arb. a. d. path. Inst. d. Univ. Helsingfors, 1921, n.s. ii, 299. [237]
- Carcinomatous papilloma of the renal pelvis. L. H. LANDON and N. M. ALTER. Ann. Surg., 1922, lxxv, 605. [238]

Four cases of nephrostomy performed for various lesions. W. C. DANKFORTH. *Surg., Gynec. & Obst.*, 1922, LVIII, 226.

The value of the separate examination of the urine of each kidney in pyelonephritis suppurativa. Also a report on fifty-two pyelonephritis albae treated during the year 1920-1921. H. BÜRMINGHAUS. *Ztschr. f. urol. Chir.*, 1922, VIII, 186.

Unilateral obstruction. L. J. RAVENEL. *J. South Carolina M. Ass.*, 1922, XVIII, 134.

Bladder, Urethra, and Penis

Diverticula of the bladder. A. H. CROSBIE. *J. Urol.*, 1922, VII, 153.

Hernia of the bladder. J. N. BARBER. *Ann. Surg.*, 1922, LV, 615.

Cystitis. C. R. DAY. *Southwest J. M. & S.*, 1922, XXV, 1. Contracture of the neck of the bladder. E. REIN. *N. York M. J. & Med. Rec.*, 1922, CXV, 136.

Substomachotomy per urethram: a simple and safe procedure for the cure of contracture of the vesical orifice. J. T. GARRETTY. *J. Urol.*, 1922, VII, 209. [238]

Primary carcinoma of the female bladder, with report of a case. I. S. STONE. *Am. J. Obst. & Gynec.*, 1922, III, 117.

Bone metastasis from primary carcinoma of the urinary bladder. H. G. WELLS. *J. Urol.*, 1922, VII, 382.

The experimental results of total and subtotal cystectomy. E. A. DELEPISO. *Ztschr. f. urol. Chir.*, 1922, VIII, 177. A case of urethral calculus of fifty-three years' duration. C. S. HIRSH. *J. Am. M. Ass.*, 1922, LVIII, 1137.

A wandering silk suture removed from the urethra as a sequel to caesarean section. S. G. LUKER. *Proc. Roy. Soc. Med., Lond.*, 1922, XII, Sect. Obst. & Gynec., 31.

Perineal abscess communicating with the urethra in the bulbo-membranous portion: report of a case simulating extrusion of urine. C. K. SMITH. *J. Am. M. Ass.*, 1922, LVIII, 1134.

The structural basis for congenital valve formation in the posterior urethra. F. M. WATSON. *J. Urol.*, 1922, VII, 379. [238]

The so-called callosa (tumors) of the male urethra. M. GRACHAN. *Deutsche Ztschr. f. Chir.*, 1921, CLV, 134. [239]

Dilatation of the urethra. C. HAMMESBAHR. *Zentralbl. f. Chir.*, 1922, XLIX, 474.

Spider bite of the glans penis. W. S. WOODY. *N. York M. J.*, 1922, CXV, 347.

Genital Organs

Epithelioma of the genito-urinary organs. A. C. BROADBENT. *Ann. Surg.*, 1922, LVII, 574. [239]

A report on the Steinhilber operation in senility and premature senility. A. I. WEDBAST. *N. York M. J.*, 1922, CXV, 343.

Gonorrheal epididymitis. A. RAVICH. *N. York M. J.*, 1922, CXV, 326.

The interstitial gland. L. WILLIAMS. *Brit. M. J.*, 1922, I, 833.

Physiological and pharmacological studies of the prostate gland, the response of the prostatic muscle to drugs. D. I. MACINTY. *J. Urol.*, 1922, VII, 407.

A case of prostatic infection complicated by osteomyelitis. J. PETERSON. *J. Urol.*, 1922, VII, 403.

A procedure for the cure of prostatic abscess. H. S. BARRINGER. *J. Urol.*, 1922, VII, 397.

A new method of perineal prostatectomy which insures more perfect results: a preliminary report. J. T. GERARDY. *J. Urol.*, 1922, VII, 149. [239]

Acute periprostatis simulating acute appendicitis. L. T. MANN. *J. Am. M. Ass.*, 1922, LVIII, 1139.

Miscellaneous

Summary of recent progress in urology. W. F. BRAASCH. *Minnesota Med.*, 1922, V, 286.

A summary of a year's work (1920) in urology. N. P. RATHBUN and G. PHILLIPS. *N. York M. J. & Med. Rec.*, 1922, CXV, 505.

A plea for the early recognition of urologic conditions. P. A. JACOBS. *J. Am. M. Ass.*, 1922, LVIII, 1160.

A urologist's views on syphilis. C. H. CHETWOOD. *N. York M. J. & Med. Rec.*, 1922, CXV, 501.

The vaccine treatment of gonorrhea. A. FOSTER. *Med. J. Australia*, 1922, I, 578.

Cancer of the urinary tract. E. A. FLETCHER. *Wisconsin M. J.*, 1922, XX, 615.

A needle for radium treatment through an operating cystoscope. R. D. HEROLD. *J. Am. M. Ass.*, 1922, LVIII, 1158.

The high-frequency current in urology: technique and indications. I. S. COVISA. *Rev. españ. de Ciruj.*, 1922, III, 397.

Periteneal abscess, with case reports. J. H. TAYLOR. *J. South Carolina M. Ass.*, 1922, XVIII, 128.

Symptomless hamaturia. A. H. BURGESS. *Brit. M. J.*, 1922, I, 787.

SURGERY OF THE EYE AND EAR

Eye

Ferries in ophthalmic literature. J. M. BALL. *Am. J. Ophth.*, 1922, V, 217.

The endocrine system: some relations to ophthalmology and otolaryngology. P. FRIEDBERG. *Pennsylvania M. J.*, 1922, XXX, 713.

The etiological relation of the eye to the endocrine organs. W. ZERNIKER. *Pennsylvania M. J.*, 1922, XXX, 627.

The ocular muscles. E. L. GOAR and W. RALSTON. *Texas State J. M.*, 1922, XVII, 31.

Some remarks on penetrating injuries of the eye by steel particles. F. ASANBY. *N. York M. J.*, 1922, CXV, 189.

Pathological report of an eye enucleated after Elliott's trephining. H. HANCOCK. *Bull. Ayer Clin. Lab. Pennsylvania Hosp., Phila.*, 1922, 61.

Sympathetic ophthalmia: report of two cases. D. T. VAHL. *Arch. Ophth.*, 1922, LI, 753.

Gonorrheal ophthalmia in the child. J. A. McCaw. *Am. J. Ophth.*, 1922, V, 371.

Bilateral persistent pupillary membranes. G. N. BRAZEAU. *Am. J. Ophth.*, 1922, V, 370.

The conservation of vision. C. M. FULLENWIDER. *J. Oklahoma State M. Ass.*, 1922, XV, 143.

Eyeglasses versus spectacles. F. G. MURPHY. *Am. J. Ophth.*, 1922, V, 360.

Monocular and binocular judgment of distance. R. V. DEVO. *Am. J. Ophth.*, 1922, V, 343.

Myopia in an infant. R. W. HENRY. *Brit. J. Ophth.*, 1922, VI, 218.

Speed of accommodation as a practicable test for fliers. L. E. TUFFY and E. K. STARK. *Am. J. Ophth.*, 1922, V, 319.

- Persistent accommodative spasm due to latent hyperphoria. F. W. MARLOW. *Arch. Ophth.*, 1922, li, 224.
- Herpes cornea. E. BOECKMANN. *Minnesota Med.*, 1922, v, 272.
- A corneal ulcer following the application of a tonometer. W. J. GILBERT. *Am. J. Ophth.*, 1922, v, 371.
- Observations on the treatment of corneal ulcers. J. H. BRIDGES. *Texas State J. M.*, 1922, xviii, 29.
- The successful treatment of a case of variolous inflammation of the cornea. G. H. BURNHAM. *Canadian Pract.*, 1922, xlvii, 199.
- A case of tuberculous iridocyclitis and parenchymatous keratitis of the left eye, associated with tuberculosis of the conjunctiva of the right eye, and tuberculous lymphadenitis. H. NEAME. *Brit. J. Ophth.*, 1922, vi, 204.
- A case of metastatic carcinoma of the choroid. J. A. MAXMILLAN. *Arch. Ophth.*, 1922, li, 227.
- The treatment of cataract. H. SMITH. *Texas State J. M.*, 1922, xviii, 11.
- Observations on the Barraquer cataract operation. W. AYRES. *Cincinnati J. M.*, 1922, iii, 123.
- Precautions necessary to avoid accidents in intra-capsular extraction. W. A. FISHER. *Texas State J. M.*, 1922, xviii, 19.
- The status of intra-capsular cataract operations in North America, with an analysis of the procedure and results. J. O. McREYNOLDS. *Texas State J. M.*, 1922, xviii, 16.
- Malaria and eye, nose, and throat infections. H. B. STARRY. *South. M. J.*, 1922, xv, 406.
- Teeth in relation to diseases of the eye. D. W. WELLS. *Dental Cosmos*, 1922, lxi, 513.
- Impacted third molar as the primary cause of ocular disturbances. O. P. ROLLER. *Dental Cosmos*, 1922, lxi, 506.
- Sarcoma of the orbit. V. O'HEA-CUSSEN. *Brit. J. Ophth.*, 1922, vi, 215.
- Ocular congestion in the menopause. J. GONZÁLEZ. *Med. Ibera*, 1922, xvi, 357.
- Intra-ocular tension as I have seen it. T. F. ROBERTS. *Texas State J. M.*, 1922, xviii, 27.
- Clinical observations on increased intra-ocular tension. T. FAITH. *Am. J. Ophth.*, 1922, v, 352.
- Glaucoma. W. H. WILDER. *Surg., Gynec. & Obst.*, 1922, xxxiv, 685.
- Glaucoma, a ciliary neuritis. O. WIPPER. *Am. J. Ophth.*, 1922, v, 368.
- Observations concerning the causation of simple glaucoma. J. DUNN. *Am. J. Ophth.*, 1922, v, 348.
- The early recognition of glaucoma simplex. H. C. HADEN. *Texas State J. M.*, 1922, xviii, 24.
- The present trend in glaucoma operations: iris-prolapse technique. H. HERBERT. *Arch. Ophth.*, 1922, li, 203.
- An unusual case of renal retinitis. R. F. MOORE. *Brit. J. Ophth.*, 1922, vi, 193.
- Retinitis proliferans. H. V. WUERDEMANN. *Am. J. Ophth.*, 1922, v, 337.
- Detachment of the retina following intracapsular cataract extraction. W. RALSTON and E. L. GOAR. *Am. J. Ophth.*, 1922, v, 372.
- Glioma of the retina. M. J. KEYS. *Am. J. Ophth.*, 1922, v, 362.
- Papillitis due to tonsillitis: three cases. P. A. HARRY. *Brit. J. Ophth.*, 1922, vi, 216.
- The diagnosis of subretinal tumor. A. J. BALLANTYNE. *Brit. J. Ophth.*, 1922, vi, 214.
- The optic nerve and the accessory sinuses. J. VAN DER HOEVE. *Arch. Ophth.*, 1922, li, 210.
- Postoperative complications in eye surgery. L. H. LANIER. *Texas State J. M.*, 1922, xviii, 21.
- Amaurosis from hemorrhage. H. W. REID. *Cincinnati J. M.*, 1922, iii, 122.
- Total amaurosis after the injection of novocaine or air embolism. O. H. PETERSEN. *Zentralbl. f. Chir.*, 1922, xlix, 396.

Ear

- Undergraduate teaching of otology. G. F. PALEN. *Hahneman. Month.*, 1922, lvii, 257.
- What the general practitioner can do in otology. D. O. KEARBY. *J. Indiana M. Ass.*, 1922, xv, 155.
- The rôle of the thyroid gland in otolaryngology. H. A. SCHATZ. *Pennsylvania M. J.*, 1922, xxv, 520.
- The roentgen rays as an aid in the diagnosis of diseases of the mastoids and nasal sinuses. J. ASPRAY. *Northwest Med.*, 1922, xxi, 136.
- Pneumococcus mastoiditis without otitis media. L. T. RICHIE. *Colorado Med.*, 1922, xix, 95.
- When is the simple mastoid operation indicated in the treatment of acute mastoiditis? C. F. YERGER. *Illinois M. J.*, 1922, xli, 350.
- A modification of the mastoid operation for early suppuration in acellular mastoids. D. MCKENZIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xix, Sect. Otol., 26.
- The radical mastoid operation. J. G. PARSONS. *J. Lancet*, 1922, n.s. xlii, 223.
- Abscess in the temporosphenoidal lobe following five months' postoperative mastoidectomy for the relief of a chronic purulent otitis media—autopsy findings. W. SPIELBERG. *Am. Med.*, 1922, xxviii, 290.
- A case of diphtheria of the middle ear as a primary infection. R. M. BLANCHARD. *Med. Press*, 1922, n.s. cxliii, 470.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

- Total and partial rhinoplasty and the free transplantation of skin. J. JOSEPH. *Klin. Wchnschr.*, 1922, i, 678. [241]
- Some interesting phases of the nasal question. E. H. CARY. *Texas State J. M.*, 1922, xviii, 38.
- Teeth in relation to diseases of the nose and throat. D. C. GREENE. *Dental Cosmos*, 1922, lxi, 530.
- A simple local treatment of acute nasal inflammation at the bedside. W. A. HITSCHLER. *Therap. Gaz.*, 1922, xvi, 312.
- Nasal tuberculosis. E. VIROLO. *Rassegna internaz. di clin. e terap.*, 1922, iii, 111.

- Sinus infections and their proper treatment. L. N. GROSVENOR. *J. Lancet*, 1922, n.s. xlii, 227.
- Some morbid nasal conditions that cause ocular diseases. G. J. ALEXANDER. *Hahneman. Month.*, 1922, lvii, 269.
- The Moure operation for the removal of large growths and foreign bodies from the antrum. V. DABNEY. *Surg., Gynec. & Obst.*, 1922, xxxiv, 667. [241]
- Aeration of the posterior accessory sinuses in acute optic neuritis. L. E. WHITE. *Laryngoscope*, 1922, xxxii, 382.
- Traumatism of the maxillary sinus. L. JEMTEL and F. ROUSSEAU. *Arch. franco-belges de chir.*, 1922, xxv, 417.

Fracture of the maxillary sinus with emphysema of the lower eyelid. J. MORRAU. *Arch. franco-belges de chir.*, 1922, xxx, 421.

Maxillary sinusitis of dental origin. K. A. PHILPS. *Minnesota Med.*, 1922, v, 309.

Chronic maxillary sinusitis as a source of focal infection. T. E. FULLER. *Texas Med. J.*, 1922, xcii, 35.

The treatment of maxillary sinus infections. M. E. FISKEV. *Med. Times*, 1922, 1, 135.

A new operation technique for the operative and post-operative treatment of maxillary sinus diseases. H. B. LEMORE. *Laryngoscope*, 1922, xxxii, 273.

The causes of adenoiditis. P. BRISOTTO. *Riforma med.*, 1922, xxxviii, 409.

Throat

The tonsils. S. COHEN. *N. York M. J.*, 1922, cxv, 658.

The offending tonsil. W. T. BRUNER. *Kentucky M. J.*, 1922, xl, 373.

The teeth and tonsils as a source of disease. F. ST. SURE. *Northwest Med.*, 1922, xxi, 146.

Tonsil carcinoma. J. VAILLANCOURT. *Bull. méd. de Québec*, 1922, xxii, 195.

Indications and contra-indications for tonsillectomy from an internist's point of view. K. WINNLOW. *Northwest Med.*, 1922, xxi, 144.

A correlated study of the indications for tonsillectomy and of the pathology and bacteriology of the excised tonsils. L. HARMONCHET and F. R. NUZUM. *Arch. Int. Med.*, 1922, lxxii, 93.

Precautions to be taken before tonsil operations. H. HAYS. *Med. Times*, 1922, 1, 137.

Excision of the tonsil under local anesthesia. D. McKEITH. *Practitioner*, 1922, cviii, 314.

Tonsillectomy. H. O'CONNOR. *Med. Press*, 1922, n.s. cxiii, 419.

A modified technique for the control of tonsillar hemorrhage. H. M. THOMAS. *Illinois M. J.*, 1922, xii, 356.

On the use of radium to effect an atrophy of pharyngeal lymphoid tissue—a topical review. S. WYTHE. *Laryngoscope*, 1922, xxxii, 164.

Foreign bodies in the upper air passages resembling a diphtheritic stenosis of the larynx. T. BRANTON. *Klin. Wochenschr.*, 1922, i, 629.

Sound bar in the larynx: report of a case—endoscopic removal. G. F. KEEFER. *J. Indiana M. Ass.*, 1922, xv, 191.

Acute stenotic laryngitis simulating laryngeal diphtheria. C. A. THOMSON. *J. Am. M. Ass.*, 1922, lxxviii, 1436.

Mouth

Dental infections from a medical point of view. C. H. SPRADUE. *Northwest Med.*, 1922, xxi, 152.

Method of determining the prognosis in oral infections. H. J. KAUFER. *Dental Cosmos*, 1922, lxi, 509.

Diagnosis of cancer of the buccal cavity. G. V. L. BROWN. *Wisconsin M. J.*, 1922, xx, 603.

Diathermy in malignant disease of the mouth and fauces. W. J. HARRISON. *Practitioner*, 1922, cviii, 321.

Primary multiple venereal ulcers of the tongue. M. GIOVANNI. *Riforma med.*, 1922, xxxviii, 490.

INTERNATIONAL ABSTRACT OF SURGERY

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COLLECTIVE REVIEW

RECENT ADVANCES IN PLEURO-PULMONARY SURGERY

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FOR years the progress of thoracic surgery was blocked by the fear of pneumothorax and lack of faith in the power of the pleura to resist infection. It has been comparatively recently that means have been found whereby these barriers can be surmounted or avoided, and since this discovery thoracic surgery has developed as swiftly as any of the other surgical branches. It has been found that the physiological readjustments which are necessary when pneumothorax has been established can usually be made readily by the body. It has been discovered also that, by various means, such as the use of differential pressure, the stabilizing of the mediastinum by direct traction, the stimulation of the formation of adhesions, etc., operations can be undertaken even in cases in which the organism cannot readily make the required adjustment.

With the growth of our knowledge and the expansion of the scope of thoracic surgery new problems present themselves. A large number will undoubtedly be solved by painstaking research, clinical observation, and a careful sifting and weighing of opinions. It is no idle boast that within a comparatively few years chest surgery will be on the same firm footing as abdominal surgery today.

DIFFERENTIAL PRESSURE

The work of Graham and Bell seemed to establish firmly the necessity for some sort of a differential pressure apparatus in operations upon the chest. Graham and Bell (26), working particularly with dogs, came to the following interesting conclusions:

In a normal chest the mediastinum is a membrane which offers little resistance to pressure changes. The old idea that it is a firm partition between the two pleural cavities is erroneous. The pressure change in one cavity is almost equalized in the other. "From the standpoint of pressure relation, the thorax may be considered as one cavity instead of two. Any change in pressure in one pleural cavity will affect also the other one almost equally. The common conception of collapsed lung on one side and 'healthy' and 'normal' lung on the other in the condition of open pneumothorax in the otherwise normal chest must be erroneous."

Graham and Bell devised a formula for determining the largest possible opening which can be made in the wall of a normal chest with safety. By a "normal chest" they meant a chest with a normal mediastinum and absence of pleural lesions. To Graham (24), the degree of asphyxia which will follow the creation of an open pneumothorax in a normal chest will therefore depend to a considerable extent on the ratio of the amount of air which enters the thoracic opening to the amount which enters the lungs at each inspiration. It is possible to show this relationship by means of the following mathematical expression in which, as will be seen, the vital capacity is an important factor:

$$X = \frac{V - \frac{R_1}{R_2} T}{\frac{R_1}{R_2} T} aC$$

V, vital capacity

R₁, rate of respiration before the opening is made

R_0 , rate of respiration after the opening is made.

V , total air (approximately 200 c.c.m.)

n , a factor less than 1 (assumed to be 0.8).

C , area of the glottis (about 2.25 sq. cm.)

"If in substituting numerical values in the equation we insert 4,800 for V (the normal vital capacity of men with a height of from 5 ft. 8½ in. to 6 ft., according to Præboly and Wentworth), 12 for R_0 (an average rate of respiration during complete rest), and 60 for R_1 (an estimated maximum rate for the greatest possible depth of respiration), then $X = \frac{4,800 \times 125}{125} \div 60 = 37.4 \times 1.8$ or $X = 67.32$ sq. cm., or 10.4 sq. in."

Observations made on the battle fields, in the first-aid stations, and in the base hospitals in France appeared at variance with this work of Graham. It was not uncommon to see men with wide-open chest wounds, much larger than the maximum opening permitted by Graham's formula, who continued to breathe with surprisingly little discomfort. Mindful of this fact, surgeons became bolder in their operative procedures and many came to the conclusion that an open pneumothorax is of much less importance than was formerly believed.

Heuer (36) writes, "Practical experience has given rise to the very general opinion that differential pressure anaesthesia is unnecessary in operations upon the thorax. Pressure anaesthesia is a distinct disadvantage if used continuously throughout operation, for experimental work and operative experience show that all operative procedures can most easily be carried out with the lung collapsed."

Lockwood (46), also writing of his war experiences, claims that differential pressure is unnecessary. He states, "The deductions of Graham and Bell from experiments on animals as to the size of the thoracic opening that is safe has no practical application to man. Complete collapse of the lung is extremely rare." Gask (21) agrees with Lockwood.

Richter (59) also is of the opinion that the findings of Graham's experiments on dogs are not applicable to clinical cases. He writes, "When one opens one side of the human chest one diminishes the capacity to but a trifling degree."

On the other hand, other men who have had large experience in thoracic surgery in civil practice are in favor of differential pressure. Sauerbruch (64) is convinced that positive pressure not only facilitates operation but prevents shock and lessens the chance of postoperative complications.

Meyer (54) claims that one of the two chief principles underlying safe thoracic surgery is the

use of differential pressure to prevent acute pneumothorax during operation. In one article (51) he refers to differential pressure as the very foundation of modern chest surgery.

Lillenthal (44) relies upon intrapharyngeal positive pressure during operation.

Hedblom (29) says, "It is obviously not only possible, but reasonably safe, so far as the immediate risk to the life of the patient is concerned, to open wide the pleural cavity without differential pressure anaesthesia. . . . From a technical standpoint, however, an operation under differential pressure anaesthesia can unquestionably be performed with greater assurance, less disturbance to the patient, and greater comfort to the surgeon." Hedblom is of the opinion that the complications are fewer when differential pressure is not used.

Yates (72) states, "The positive-pressure gas-oxygen analgesia devised by Gwathmey and primary air-tight one-way drainage are going to make thoracotomy a feasible, safe operation because they give the greatest protection against purulent pleurisy."

Matas (49) claims that one of the most "dramatic" of the surgical experiences of the war was the "seeming freedom and impunity with which military surgeons invaded the chest and manipulated the thoracic organs." But he adds, "I would regard it as a veritable calamity that would befall the progress of thoracic surgery if the experience of the war were to breed a contempt or indifference for the principles and methods of differential pressure in warding off the perils of acute pneumothorax or if the old practice of open 'unaided' transpleural thoracotomy were accepted as a generalization without reserve or very specific restrictions and limitations."

INJURIES TO THE CHEST WALL

The literature on injuries to the chest wall is so extensive that it is not possible to review it in detail. A few of the conclusions gained from war experience as recorded by Heuer (36) will be noted here. Any reader interested should refer to this article with its very complete bibliography. Heuer divides penetrating war wounds of the chest into two groups, those which required immediate surgical treatment at forward hospitals and those which could be safely treated expectantly. The former group eventually came to include: (1) those with primary hæmorrhage threatening life; (2) those with open sucking pneumothorax; (3) those with large retained foreign bodies (over 1 cm. in diameter); and (4) those with extensive rib fractures (the "stove-in"

chest of the British). In the second group were: (1) the perforating bullet and small shell wounds with small clean wounds of entrance and exit; (2) the penetrating bullet and small shell wounds with a clean wound of entrance and without extensive rib fractures.

The question as to whether the anaesthesia should be local or general and induced with or without differential pressure is still undecided. Heuer used local anaesthesia for the local excision and closure of thoracic wounds but general anaesthesia without differential pressure when extensive manipulation of the lung was necessary. The wound of the thoracic wall was usually excised. The lung was sutured either directly or after excision of the injured tissue along the tract of the missile, or a triangular area was resected and the cut surfaces approximated and sutured. The pleura should be carefully cleaned before closure. Heuer removed blood clots and blood by siphonage instead of irrigation. He found that tight closure of the chest gave the best results.

Hutchinson (33) treated simple uninfected hæmothorax by thoracotomy, evacuation of the clot, tight closure of the chest wall, and aspiration of the remaining air. In infected hæmothorax the cavity was washed out with an antiseptic and the chest wall then again closed tightly.

For cases of old fistulous chest wounds Roux-Berger (61) favors a large, wide thoracotomy. He first drains and irrigates the cavity for several days and then at a second operation fixes the lung to the thoracic wall and drains the wound again.

The Petit de la Villeon (58) method of extracting foreign bodies through a buttonhole incision, a heavy forceps being guided to the bullet under fluoroscopic control, is worthy of note as de la Villeon reports hundreds of cases in which foreign bodies were successfully removed in this manner. The method is claimed to be extremely simple and renders extensive thoracic operations unnecessary.

Duval (15) is of the opinion that wounds of the lung should be treated from the beginning in the same manner as other gunshot wounds. "It is only logical to think that the really effective treatment of infection in the lung and of its usual complication, infection of the pleura, is preventive treatment by removal of foreign bodies and direct treatment of the lung wound." Duval believes that every lung wound of warfare is contaminated. His operation consists of the formation of a large free opening into the chest wall, palpation of the lung for foreign bodies, cleansing of the lung wound, excision if necessary, careful nettoyage of the

pleural cavity, hermetic closure of the chest, and aspiration of the residual air.

Moynihan (57) agrees with Duval that early and radical operation is indicated.

THE RESISTANCE OF THE PLEURA TO INFECTION

With regard to the resistance of the pleura to infection previous opinion has been reversed. Most authors now claim that the resistance of the normal pleura to infection is high but is greatly reduced by pneumothorax.

According to Lockwood (46), the pleura is undoubtedly more resistant to infection than the peritoneum. However, empyema following a simple thoracic operation is a grave condition.

Amreich and Sparmann (3) state that the pleura has a great power of absorption. The motion between the pleural walls spreads infecting material in a thin, easily absorbable film. That the pleura has particular bactericidal powers seems evident from the fact that spontaneous cure sometimes occurs in cases of severe pleural infection. In experiments on animals Moetzel (55) found that quantities of staphylococci which produced abscesses and severe sepsis when injected subcutaneously or intravenously were easily borne by the pleura, and after two days the pleural cavity was again sterile.

An infected pleurisy in a case of open pneumothorax is a different matter. The probability that a persistent pneumothorax will remain sterile is extremely slight. Therefore an open pneumothorax should be closed as soon as possible. To quote Sauerbruch (64), "Operations have taught us that the pleural cavity, just as the peritoneal cavity, is resistant to mild infection, provided the pleura itself is not injured or that a pneumothorax is not present. The importance of a careful tissue-sparing operative technique is self-evident."

LUNG ABSCESS

Lung abscesses are becoming better recognized but we are still far from definite conclusions as to their etiology or treatment.

Lynah (47) believes that most, if not all, lung abscesses are due to aspiration. Fisher and Cohen (20) state, "It is undoubtedly feasible for a lung abscess to result from aspiration of infective material. . . . In our opinion, however, the most potent cause of this complication is the introduction, through either the lymph or the vascular circulation, of infected emboli which find lodgment in the lung structures." From the discussion of this paper it would appear that

the majority of the laryngologists, rhinologists, and surgeons were in favor of the first view.

Moore (36), from an analysis of 100 cases following operative work, believes that the vast majority of cases are of inspiratory origin.

In support of the second contention the work of Cutler and Hunt (12) is of interest. These workers called attention to the great number of pulmonary complications following surgical interventions and concluded that they were due to emboli liberated during operation.

With regard to methods of diagnosis the work of Lynah and Stewart (48) is of great interest. Through the bronchoscope 8 c.cm. of a 1:2 mixture of bismuth subcarbonate in sterile olive oil were injected into the bronchial tree to map out the abscess cavities. Lynah and Stewart claim that this can be done without endangering life and that the method has many possibilities. The X-ray picture must be taken very soon after the bismuth is injected or the patient will cough up a great part of it.

The treatment of lung abscess has improved but the results are still far from satisfactory.

Lockwood (46) states that a much smaller percentage of lung abscesses are now considered surgical than formerly but the operation is much more radical and more apt to result in complete cure. He advises first trying rest in bed, postural drainage, open air treatment, and forced feeding.

Lemon (41) also recommends first giving medical treatment a trial. Of eighty-one cases observed by him, fifty were due to a lung infection such as pneumonia, grippe, etc., and seventeen followed throat operations. Lemon is another of those who emphasize the possibility that abscess of the lung may be caused by septic emboli.

In this connection mention should be made of the work of Rupp (62) who, after a study of 650 lung emboli in about 13,000 cadavers, reached conclusions contradictory to those of Kretz. Rupp claims that emboli lodge in the lower lobes four times as often as in the upper lobes, whether they originate from the veins of the upper or the lower part of the body.

Laignel-Lavastine and Coulaud (40) cured a case of pneumococcus lung abscess with autoserum. Whittemore (66) favors early operation performed in two stages.

According to Hedblom (28), the best treatment of localized suppuration in the lung is early free drainage. He drains the abscess through the adherent pleura after the pleural cavity had been walled off by suture of the lung to the parietal pleura. He believes that a two-stage operation is a safeguard against empyema.

Lynah (47) states that relief, and possibly cure, may be brought about by means of bronchial suction evacuation. He dilates the semi-occluded bronchi by passing a flexible probe. Some of the cases in which he injected bismuth seemed to react most favorably to subsequent X-ray treatment. Stewart ascribed this effect to a secondary ray action.

Tewksbury (67) in 1917 reported two cases of acute non-tuberculous pulmonary abscess treated by means of artificial pneumothorax. In 1918 he reported ten cases, six of which were cured, two were temporarily improved, and two resulted fatally.

Green (27) believes that, on account of adhesions, artificial pneumothorax cannot be of aid.

In operating in cases of abscesses due to retained foreign bodies in which the presence of adhesions is not definitely proved before operation Jehn and Mayer (37) use differential pressure, locate the foreign body or abscess by palpation, anchor the lung with catgut, open it with a knife or cautery, remove the foreign body, and drain.

Bruening (9) is opposed to treating lung abscess by pneumothorax.

Green (27) advocates thoracotomy and drainage in the treatment of lung abscess. He writes, "It is difficult to conceive how artificial pneumothorax can benefit these cases uniformly because in the very spot where one desires the lung to be collapsed adhesions keep it outfastened to the parietal pleura."

In 1918 Beck (6, 7) described a sutureless skin-sliding operation for cases of lung abscess and empyema in which flaps are made from the skin of the chest wall overlying the lesion. After resection of a sufficient number of ribs the abscess cavity is widely exposed and cleaned of its contents and the skin flaps are shifted into the depth of the cavity and kept in contact with the abscess wall by gauze packed tightly against them. The cavity thus lined with epithelial covering will gradually diminish in size.

Regarding the prognosis in children, Wessler and Schwartz (68) claim that it is poor in cases of abscess following pneumonia but better in cases of abscess resulting from the aspiration of foreign bodies or septic material during operation.

According to Jackson (34), the prognosis in lung abscess due to a foreign body in the bronchus is good if it is possible to remove the foreign body with the bronchoscope, and the great majority of foreign bodies which have gained access through the bronchi can be removed with the bronchoscope.

BRONCHIECTASIS

The subject of bronchiectasis is closely allied to that of lung abscess and in many instances the treatment advocated is the same. Undoubtedly as our methods of diagnosing this condition improve, the number of reported cases will increase.

Meyer (52) writes, "A patient who shows all the symptoms of advanced tuberculosis, cough, sputum not infrequently mixed with blood, night sweats, fever, and clubbed fingers and toes, but in whom tubercle bacilli have not been found is in over 90 per cent of the cases a bronchiectatic."

Sauerbruch (63) also emphasizes the similarity of the symptoms of bronchiectasis and tuberculosis.

In the diagnosis and localization of the source of the suppurative process bronchoscopy is of importance.

Many methods of treatment have been suggested. Meyer (52) states that in advanced cases the only method that can cure is lobectomy but that in others extrapleural thoracotomy and phrenectomy are indicated.

Heuer (30) states that bronchiectasis involving one lower lobe lends itself to surgery. He claims that collapse therapy based upon rib resection methods such as those of Estlander, Quincke, Friedrich, Sauerbruch, Tuffier, and Wilms is inadequate and rarely results in more than temporary improvement. He doubts also the value of artificial pneumothorax. When it is possible, he regards lobectomy as the operation of choice.

Sauerbruch claims that ligation of the pulmonary artery can help only in early cases of circumscribed bronchiectasis. Artificial pneumothorax is of little avail. Localized bronchiectasis may be treated as lung abscess either by a one- or a two-stage operation and drainage, depending on the presence of adhesions. Although evidently not placing very much confidence in either operation, Sauerbruch claims that for bronchiectasis which is affected by compression of the lung a thoracoplastic operation is to be preferred to a transplantation. When feasible, lobectomy is the operation of choice.

TUBERCULOSIS

It was only to be expected that as soon as the development of technique had reduced the danger of thoracic surgery action should be directed against combating tuberculosis.

Since the work of Murphy and Forlanini, the trend of surgical practice in the treatment of tuberculosis of the lung has been to place the affected lung at rest. The best method of accomplishing this is the establishment of an artificial pneumo-

thorax. The condition offering the chief obstacle to artificial pneumothorax is the formation of adhesions. Of late, this difficulty has been met in two entirely different ways: (1) by dissolution of the adhesions, and (2) by collapsing the lung. The most original of the recent efforts are those of Jacobaeus (35, 36). Jacobaeus attempts to establish artificial pneumothorax in the usual manner, then locates the adhesions by means of thoracoscopy, that is, the insertion of an endoscope through a stab wound, and then through another puncture wound introduces an electrocautery and burns through the adhesions, being guided by endoscopic vision. The use of the cautery prevents hemorrhage. "The most serious complications of this operation are pleuritic exudate and empyema." The mortality in Jacobaeus' cases was about 6 per cent, although it is not fair to attribute all of the deaths to the operation alone. In seventy-eight cases reported the method was successful in removing adhesions which prevented complete collapse of the lung in about 75 per cent. With regard to the clinical results it is more difficult to establish definite figures. Jacobaeus refers to Gravesen's tables of prognosis of pulmonary tuberculosis without adhesions or with apical or lateral or diaphragmatic adhesions. In the seventy-eight cases reported the results following cauterization of the adhesions were better than those following the usual method of treatment alone.

The literature is replete with articles bearing on extrapleural thoracotomy for collapse of the lung. In 1916 Robinson (60) condemned this procedure and stated that the only justifiable mechanical method for the collapse of the lung in pulmonary tuberculosis is the introduction of nitrogen or a fluid into the pleural cavity.

Whittemore and Chaffin (70) have reported a case in which removal under regional anesthesia of a section from 1½ to 2 cm. in length from all the ribs beginning at the eleventh resulted in an improvement in the patient's condition.

Bull (10) advises thoracoplasty for unilateral tuberculosis of the lung if pneumothorax has been found of no avail. Contra-indications are tuberculous foci in other parts of the body. Of eleven patients treated in this manner three died postoperatively. In another series of twenty-six cases death followed the operation immediately in one case and a cure was obtained in 40 per cent. Bull advises resecting 12 cm. of the tenth and ninth ribs and 15 cm. of the eighth, seventh, sixth, and fifth ribs. If the upper lobe is involved, part of the first and second ribs should be resected. Bull begins the resection in the back, in a line

parallel with the spine and equidistant from the vertebral processes on the posterior margin of the scapula. For atypical cavities he resorts to Toddler's intrathoracic fat implantation. The operation should be done in two or more stages.

Sauerbruch (63) does not approve of Jacobaeus' intrapleural pneumolysis because of the associated danger of hemorrhage and infection. He combines extensive rib resection with pneumothorax. Intrathoracic fillings should be used in cases of tuberculosis only when the lesions have healed.

Lilienthal (45) follows Sauerbruch's technique of posterior incision and resection.

Maurizi (36) recommends Capparoni's method of injecting iodofornized glycerine into the pleural cavity for tuberculous serofibrinous pleurisy and empyema. The liberated iodine has a destructive action on the tubercle bacillus and a favorable action on the lung as it sets up an autotuberculous therapy. Moreover, the chance of secondary infection and permanent fistula after operation is avoided.

EMPHYEMA

It is impossible, within the limits of this review, to go into any detail regarding the recent work on empyema. The literature on the subject is so voluminous that its teachings can be only summarized briefly.

The tremendous clinical material presented in the winters of 1917-1918 and 1918-1919 afforded opportunity for an exhaustive study of empyema. The frightful mortality following the customary treatment gave conclusive evidence that as a routine in all cases it was faulty. However, as Eggers (16) has pointed out, it is very difficult to judge the success or failure of a method of treating empyema as the various forms and the etiological factors are so entirely different.

Much new light was thrown upon empyema by the work of the medical department of the United States forces. Gradually the various opinions first presented shaped themselves along a few definite lines. To quote Ashhurst (4), "The conclusion of the Empyema Commission and consensus of clinical experience as far as treatment is concerned may be summed up as follows: (1) cases of pleural effusion suspected to be purulent should be aspirated and if the effusion is massive most of it should be removed by aspiration one or two days before thoracotomy is undertaken; (2) if the fluid found on puncture is serous or seropurulent, thoracotomy usually may be postponed until frank pus has formed as this delay will permit the formation of firmer

adhesions and thus prevent complete collapse of the lung when the empyema is opened." These two principles, early and repeated aspiration and late thoracotomy, were practically universally accepted. The Empyema Commission (17) emphasized the value of antiseptics, especially Dakin's solution, in the sterilization of the cavity.

Before the war many surgeons had already forsaken the time honored rib resection and open drainage for some form of closed drainage. Many new devices for the establishment of air-tight drainage were brought forth. The method of trocar thoracotomy became popular. Diederich (13) at the base hospital at Camp Pike devised an ingenious trocar for the insertion of the tube in air-tight treatment. Numerous other methods of air-tight drainage were used. Brewer tubes were frequently used, and drainage was effected also by means of continuous siphonage as approved by the Empyema Commission. After frank pus had been found and the presence of adhesions could therefore be surmised, other surgeons established drainage as formerly by means of rib resection. Antiseptics, especially Dakin's solution, were often used to irrigate the empyema cavity. The Rockefeller Institute in New York was one of the first to develop a well-planned technique for the sterilization of the empyema cavity by means of Dakin solution.

Stewart (65) recommends the placing of Dakin tubes stiffened with silver wire so that the instillation of Dakin solution will come in contact with every part of the cavity wall.

Numerous devices for expanding the collapsed lung were introduced. Many were modifications of the Wolfe blow bottles. Others attempted expansion of the lung by means of suction through the drainage tubes. The value of exercise to bring about expansion was especially recognized.

The literature on chronic empyema is as voluminous as that on acute empyema. It will therefore be impossible to dwell at length upon it.

Because of the beneficial results obtained with Dakin solution in acute empyema, this treatment was advocated also for the chronic condition.

Gibbon (23) states that almost all cases of chronic empyema will heal under proper treatment. He sterilizes the cavity with Dakin solution introduced through the sinuses. He does not believe bronchial fistulae are necessarily a contra-indication to the use of this solution.

The various methods of extrapleural thoracotomy for the collapse of the chest wall for tuberculosis have been used for chronic empyema.

Lilienthal (43) describes an intra-thoracic operation by means of which he carefully explores

the empyema cavity. After the lung has been freed as much as possible by Ransohoff's dissection method, when this is advisable, he closes the chest wall tightly around a tube placed in the site of the old sinus and irrigates the cavity with Dakin's solution through this tube.

Kirschner (30) claims that it is impossible to collapse an empyema cavity sufficiently by extrapleural thoracotomy if it extends up into the apex. In such cases he attacks the apex cavity from the front, makes a trap-door by resecting a portion of two or three ribs, splits the pectoralis major muscle, and lays the cut ends of the latter in the cavity, which is thus plugged somewhat in the manner of Tuffier's fat implantation but with live muscle tissue. Kirschner temporarily interrupts the action of the phrenic nerve on the same side, exposing the nerve in the neck.

Marsupialization of the empyema cavity has been advocated by Beck (6). The operation is taken up in this review in the discussion of lung abscess.

Chevrier (11) believes that drainage in the axillary or scapular line is not efficient. In order to drain at the most dependent point, he establishes his drainage thoracotomy by making a posterior incision near the vertebral column, introduces a finger through the wound, and explores the lowest portion of the latero-vertebral depression.

Taylor and Taylor (66) have described a method of healing infected wounds and especially chronic empyema by what they term "tidal drainage." For this, a rubber cap is used which is so constructed that it fits the skin liquid tight. Two tubes are set into it by means of which liquid can be forced in and aspirated out by pressure.

Numerous operations of the types just mentioned have been advocated for the cure of chronic empyema. The underlying ideas are, of course, not new. It is proper in this review however, to make note of the return to the principle of sterilizing the cavity by means of an antiseptic solution and to call attention to the fact that a large number of writers are advising extrapleural collapse of the chest wall.

CANCER OF THE LUNG

The literature on cancer of the lung has been very carefully reviewed by Barron (5). Barron claims that such a review demonstrates the increasing importance of the disease. He quotes Briese (8) who found sixty primary tumors of the lung in 12,971 autopsies (0.46 per cent). Kaufmann (38), he states, gives the incidence of pulmonary tumors at about 0.2 per cent, while

Ewing (18) gives it as about 0.1 per cent. The statistics of Adler (2), Briese, Kaufmann, and Ewing all give the proportion of males to females affected as three to one.

Regarding the cause of the condition Barron writes, "Perhaps the chief etiologic factors are inflammatory conditions, and of these, tuberculosis is the most common." He cites Kaufmann and Aschoff as holding the same view. The suggestion is made that the influenza epidemic with its subsequent pulmonary inflammatory processes may be responsible for a number of pulmonary carcinomata encountered during the past few years.

Grossly the tumors are of three types: (1) nodular; (2) diffuse or lobar; (3) infiltrating. The third is the most common. The right lung seems to be more often involved than the left, and the upper lobe more frequently than the lower. Histologically the cylindrical-celled growths are the most common, and of these the adenocarcinoma is the most frequent type.

Barron is of the opinion that most pulmonary carcinomata develop from the bronchial epithelium. Some originate from the bronchial mucous glands and only a few from the alveolar cells. Epithelial metaplasia is relatively common in bronchial mucous membranes. This may explain the origin of the comparatively large number of squamous-celled carcinomata in this region. Metastases are numerous and especially apt to occur in the brain, suprarenals, and thyroid. The usual symptoms of pulmonary cancer are cough, pain, dyspnea, weakness, slight cachexia, and fever.

Barron quotes Fishburg and Steinbach (19) who, in a series of thirty-three cases, found that the condition was erroneously diagnosed most frequently as tuberculosis. According to Barron, the prognosis at the present time is hopeless. Surgery offers practically no hope and the X-ray and radium have also proved of little value.

Yankauer (71) reports a case of fibroma extending into the lumen of the left main bronchus which he was able to remove through the bronchoscope. He also reports a case of malignancy diagnosed with the bronchoscope and treated, with at least great temporary improvement, by means of the X-ray and the application of radium through the bronchoscope.

EXPERIMENTAL

The experimental work of Heuer and Dunn (31) on lobectomy is very interesting. These workers performed total pneumectomy on the left side on twenty-three dogs. Thirteen of the animals

recovered). Six died of distemper and four died as the result of the experiment. These results are very different from those previously reported by other workers who claimed that the great majority of animals died from leakage of the stump or infection. Heuer and Dunn performed their operations through an intercostal incision and used intratracheal insufflation anesthesia with positive pressure. The results obtained seemed to show that almost any method of closing the bronchial stump, even simple transfixion ligation of the bronchus, was adequate to insure satisfactory closure. They used successfully the following methods: (1) simple mass ligation in the neighborhood of the hilus (Lenhartz, Robinson, Sauerbruch); (2) covering the closed bronchus with a small fragment of lung tissue (Garré); and (3) inversion of the ligated stump as in the appendix (the method of Meyer and methods described by Tiegel, Früscherich and others). They are convinced that the pleura is more resistant to infection than was formerly supposed. Incidentally they found that cultures made from the walls of the bronchus at the level of the bifurcation of the trachea were always sterile.

Usually after four to six weeks the pleural cavity from which the lung was taken was almost completely obliterated. The process of obliteration began after the first few days and was nearly completed in two to three weeks. The remaining lung increased in size.

Similar to the results obtained by most experimenters are those reported by Georg, Jr. (22) who records only four recoveries after eighteen lung operations. He points out that intratracheal insufflation was not without harmful effect upon the lungs even in the dogs which recovered. Microscopic sections showed occasional interstitial emphysema and even destruction of some of the alveoli. In every section an intense congestion and atelectasis were found which Georg attributes to the harmful effect of insufflation upon the circulation of the lung.

More recently Heuer and Andrews (32) have reported further work along the same line. With regard to the effect of the absence of one lung in dogs they state, "Briefly the effects of pneumectomy are a rise in alveolar CO_2 and a fall in alveolar O_2 , these alveolar air changes being associated with a temporary rise in the CO_2 content and capacity of the blood and a marked rise in the percentage of oxygen unsaturation. Concomitantly there is a marked rise in the hemoglobin content of the blood and therefore in the oxygen-carrying capacity which may be interpreted as a compensatory method. As has been noted, the

changes in the alveolar CO_2 , alveolar O_2 , and the blood CO_2 content and capacity, and the percentage of oxygen unsaturation are very temporary, and approximately within thirty days normal relations are again established. The increased hemoglobin and oxygen-carrying capacity of the blood, however, persisted during our observation sixty-six days. They serve in part to supply the respiratory needs of the animal perhaps until complete anatomical changes in the remaining lung have taken place."

Another interesting set of experiments relating to the physiology of respiration are those of Graham (25). Graham thought that pleural effusions might be caused by the sucking action of the negative pressure at the end of inspiration, the oedema being aspirated out of the lungs in a manner somewhat similar to the action of a syringe. To prove this he placed lungs removed from patients who had recently died of bronchopneumonia and the lungs of dogs in a bell jar, connected the trachea with the outer air through a glass tube, and then aspirated the air in the jar through a stopcock to inflate the lungs. The amount of negative pressure induced in the pleural cavity (bell jar) was determined by means of a water manometer. An exudate was readily obtained from oedematous lungs but to his great surprise Graham found that it ran more copiously from the pleura when the lungs were in the state of expiration than when they were in the state of inspiration. "The exudate, therefore, which under the conditions of the experiment flowed out copiously during expiration, represents fluid that has been squeezed out of the oedematous pleura as a result of the sudden diminution in surface necessitated by the act of exhalation." In discussing his findings Graham states that he is aware that the experimental conditions were not identical with those present in life.

Drinker, Peabody, and Blumgart (14), also investigating the physiology of respiration, performed a series of experiments in which they compressed the pulmonary veins by means of a small clamp applied through a thoracotomy opening into the pericardium but not into the pleural spaces. The tidal air was then measured by a series of spirometers. They found that when the obstruction of the pulmonary veins was such as to produce congestion of the pulmonary vessels without exudation it caused interference with the entrance of air into the lungs. This interference was relieved as soon as the obstruction was removed. If there was exudation of fluid out of the vessels into the tissues and air passages, per-

manent interference with the entrance of air into the lungs resulted. They showed that intravascular blood can encroach remarkably upon the pulmonary air space.

The experimental work of Graham and Bell (26) which, in its influence on our conception of chest physiology, is the most important of recent years, has been described elsewhere.

With regard to the spread of emphysema Achard (1) showed that when he insufflated air directly into the mediastinum of an anesthetized dog the gas bubbles spread upward into the cervical region and downward into the retroperitoneal tissue. He also emphasized by experiments on cadavers the continuity between the retroperitoneal, mediastinal, and cervical tissues.

As regards the closure of the bronchial stump, modern writings do not show much advance.

Lilienthal (42) claims that isolating, tying, and invaginating the bronchial stump may be feasible and successfully accomplished when a lobectomy is performed on a dog experimentally and in removing a lung after injury when there has been no inflammatory reaction, but that it is an entirely different matter when dealing with the usual type of case for which a lobectomy or pneumectomy is indicated.

The only way to avoid hemorrhage from the vessels firmly buried in adhesions is to resort to the mass ligature principle, according to which, after the pedicle is cut, a chain of heavy chromic catgut or silk is used to transfix every part, the bronchus and blood vessels alike. A temporary fistula usually results. In four of six cases a fistula developed, drained, and healed, and finally after one or more attempts, remained closed. In one case in which the entire right lung was resected the fistula did not heal spontaneously. The further the fistula was situated from the chest wall the more readily healing occurred.

Meyer (52) emphasizes the importance of post-operative air-tight drainage. He uses the method of Kenyon described in Johnson's *Operative Therapeutics*.

REFERENCES

1. ACHARD, C. and BINET, L. Mediastinal emphysema. *Bull. Acad. de méd., Par.*, 1918, lxxx, 609.
2. ADLER, Primary Malignant Growths of the Lungs and Bronchi. New York: Longmans, Green & Company, 1912. Cited by Barron.
3. AMELICH, J. and SPARKMAN, R. The treatment of recent open pneumothorax due to gunshot wounds. *Arch. f. klin. Chir.*, 1921, cxvi, 413.
4. ASHURST, A. P. C. Observations on empyema. *Ann. Surg.*, 1920, lxxii, 72.
5. BARRON, M. Carcinoma of the lung—a study of its incidence, pathology, and relative importance, with

- a report of thirteen cases studied at necropsy. *Arch. Surg.*, 1922, lv, 624.
6. BECK, E. G. A sutureless skin-sliding method for the radical treatment of lung abscess and chronic osteomyelitis. *Surg., Gynec. & Obst.*, 1918, xvi, 259.
7. BECK, E. G. Bismuth paste in war surgery. *Ann. Surg.*, 1918, lxxvii, 392.
8. BRIESE. Primary cancer of the lung and statistical data. *Frankfurt. Ztschr. f. Path.*, 1920, xxiii, 48.
9. BRUENNING, F. Opposition to pneumothorax treatment of lung abscess. *Deutsche med. Wchnschr.*, 1919, xlv, 734.
10. BULL, P. Extrapleural thoracoplasty in the treatment of pulmonary tuberculosis, with an account of thirty-seven cases. *Lancet*, 1920, cxix, 778.
11. CHEVRIER, L. Effectual drainage of the pleura. *Presse méd., Par.*, 1919, xxvii, 9.
12. CUTLER, E. C., and HUNT, A. M. Postoperative pulmonary complications. *Arch. Surg.*, 1920, l, 114.
13. DIEDERICH, V. P. A review of the treatment of purulent pleuritis (empyema) at Camp Pike base hospital. *Surg., Gynec. & Obst.*, 1919, xxviii, 362.
14. DRINKER, C. K., PEABODY, F. W., and BLOMGART, H. L. The effect of pulmonary congestion on the ventilation of the lungs. *J. Exper. M.*, 1922, xxv, 77.
15. DUVAL, P. War Wounds of the Lung. New York: William Wood, 1918.
16. EGGERS, C. The relative value of various operative procedures employed in acute empyema. *J. Am. M. Ass.*, 1920, lxxv, 995.
17. EMPYEMA COMMISSION. Cases of empyema at Camp Lee, Virginia. *J. Am. M. Ass.*, 1918, lxxi, 366.
18. EWING, J. Neoplastic Diseases. Philadelphia: Saunders, 1919. p. 285.
19. FISHBURG, M., and STEINBACH, M. The diagnosis of intrathoracic neoplasms. *Med. Rec.*, 1921, xcix, 513.
20. FISHER, L., and COHEN, A. J. Pulmonary abscess in adults following tonsillectomy under general anesthesia. *J. Am. M. Ass.*, 1921, lxxvii, 1313.
21. GASK, G. E. Surgery of the lung and pleura. The present position of surgery with reference to diseases of the thorax. *Lancet*, 1921, cc, 1280.
22. GEORG, C., Jr. Pathological pulmonary changes following intratracheal anesthesia for experimental lung surgery. *American Yearbook of Anesthesia and Analgesia*. New York: Surgery Publishing Company, 1920.
23. GIBBON, J. H. The non-operative treatment of chronic empyema. *Am. J. M. Sc.*, 1922, clxiii, 469.
24. GRAHAM, E. A. The importance of the vital capacity in thoracic surgery. *J. Am. M. Ass.*, 1920, lxxv, 992.
25. GRAHAM, E. A. The influence of respiratory movements on the formation of pleural exudates. *J. Am. M. Ass.*, 1921, lxxvi, 784.
26. GRAHAM, E. A., and BELL, R. D. Open pneumothorax: its relation to the treatment of empyema. *Am. J. M. Sc.*, 1918, clvi, 839.
27. GREEN, N. W. Lung abscess. *Ann. Surg.*, 1919, lxx, 539.
28. HEDBLUM, C. A. Pulmonary suppuration. *Med. Rec.*, 1919, xcvi, 441.
29. HEDBLUM, C. A. Open pneumothorax in its relation to the extirpation of tumors of the bony chest wall. *Arch. Surg.*, 1922, lv, 588.
30. HEUER, G. J. Surgery of the Thorax. W. W. Keen's Surgery. Philadelphia: Saunders, 1921. Vol. 8, p. 370.
31. HEUER, G. J., and DUNN, G. R. Experimental pneumectomy. *Bull. Johns Hopkins Hosp.*, 1920, xxxi, 31.

32. HEUER, G. J., and ANDREWS, W. D. W. The alveolar and blood gas changes following pneumotomy. *Bull. Johns Hopkins Hosp.*, 1913, XXXII, 126.
33. HERTZBERG, W. A study of 425 cases of wounds of the chest, with special reference to a new method of treatment for infected hemothorax. *Canadian M. Ass. J.*, 1918, VIII, 973.
34. JACKSON, C. The prognosis of foreign body in the lung. *J. Am. M. Ass.*, 1911, LXVIII, 1275.
35. JACOBAYER, H. C. Thoracoscopy and its importance. *Deutsche med. Wchnschr.*, 1911, XLVII, 702.
36. JACOBAYER, H. C. The practical importance of thoracoscopy in surgery of the chest. *Surg., Gynec. & Obst.*, 1911, XXIV, 289.
37. JERN, W., and MAVER, K. Penetrating gunshot wounds of the thorax. *Deutsche Ztschr. f. Chir.*, 1911, LXXX, 305.
38. KATZMANN. *Special Pathological Anatomy*. Ed. 6, 1911. Vol. 3, p. 118. Cited by Barron.
39. KIRSCHNER. The radical treatment of chronic pleural empyema. *Arch. f. klin. Chir.*, 1911, CIVII, 205.
40. LAGUEL-LAVASTRE and CHAUBAUD. Pneumococcal abscess of the lung. *Bull. et mém. Soc. méd. d. hôp. de Par.*, 1911, XXXVII, 1092.
41. LEWIS, W. S. Abscess of the lung. *Canadian M. Ass. J.*, 1910, X, 1979.
42. LILIENTHAL, H. The prevention of permanent bronchial fistula following lung resection. *Ann. Surg.*, 1918, LXVII, 538.
43. LILIENTHAL, H. Double empyema—streptococcus hemolyticus (Discussion). *Ann. Surg.*, 1919, LXIX, 609.
44. LILIENTHAL, H. Ectirpation of a dermoid cyst of the mediastinum. *Surg. Clin. N. Am.*, 1921, I, 1531.
45. LILIENTHAL, H. Multiple resection of ribs with collapse of the chest for pulmonary tuberculosis. *Surg. Clin. N. Am.*, 1921, I, 1557.
46. LOCKWOOD, A. L. Developments and possibilities of thoracic surgery. *Surg. Clin. N. Am.*, 1921, I, 1425.
47. LYNAB, H. L. Bronchoscopic studies of pulmonary abscess. *J. Am. M. Ass.*, 1921, LXVIII, 1548.
48. LYNAB, H. L., and STEWART, W. H. Roentgenographic studies of bronchiectasis and lung abscess after direct injection of bluish mixture through the bronchoscope. *Ann. Surg.*, 1921, LXXII, 561.
49. MATAS, R. The value of artificial aids to respiration in "acute operative collapse of the lungs" (surgical pneumothorax) occurring in the course of intrathoracic operations: an historical review and a discussion. *Arch. Surg.*, 1913, V, 116.
50. MAYRAZ, M. The Capped method in the treatment of pleural and tuberculous peritonitis. *Gazz. d. osp.*, 1918, XXXX, 307.
51. MEYER, W. The necessity for the application of differential air pressure in thoracic operations. *Med. Rec.*, 1919, XLVI, 517.
52. MEYER, W. The evolution of thoracic surgery within the past fourteen years. *Med. Rec.*, 1919, XLVI, 701.
53. MEYER, W. Postoperative thoracic drainage. *Med. Rec.*, 1919, XLVI, 111.
54. MEYER, W. The principles underlying the safe and most rapid evolution of thoracic surgery. *Am. J. M. Sc.*, 1920, CLX, 504.
55. MORTZEL. Quoted by Amreich and Sparmann.
56. MOSER, W. F. Pulmonary abscess: an analysis of 202 cases following operative work about the upper respiratory passages. *J. Am. M. Ass.*, 1922, LXVIII, 1479.
57. MOYERMAN, B. Surgery of the chest in relation to retained projectiles. *Brit. J. Surg.*, 1920, VII, 444.
58. PETIT DE LA VILLEON. Localisation and extraction of projectiles in the lungs. *Bull. de l'Acad. de méd. Par.*, 1916, LXV.
59. RICHTER, H. M. The relative value of various operative procedures employed in acute empyema (Discussion). *J. Am. M. Ass.*, 1920, LXVI, 1006.
60. ROBINSON, S. Thoracic diseases—the status of surgical therapy. *J. Am. M. Ass.*, 1916, LXVII, 126.
61. ROUX-BRUGER, J. L. The treatment of large pleural cavities by disinfection, pleurectomy, and pneumopexy. *Presse méd., Par.*, 1910, XXVII, 80.
62. RUPP, A. The localization of lung emboli. *Arch. f. klin. Chir.*, 1921, CXV, 689.
63. SACERBRUCH, F. The surgical treatment of pulmonary tuberculosis. *Muenchen. med. Wchnschr.*, 1911, LXVIII, 261.
64. SACERBRUCH, F. *Surgery of the Thoracic Viscera*. Berlin: Springer, 1920. Vol. 1.
65. STEWART, G. A. The treatment of empyema by the Carrel-Dakin method at the War Demonstration Hospital, Rockefeller Institute for Medical Research. *Med. Rec.*, 1918, XLV, 236.
66. TAYLOR, W. H., and TAYLOR, N. B. Tidal irrigation of wounds by means of liquid-tight closure, with special reference to the treatment of empyema of the thorax. *J. Am. M. Ass.*, 1921, LXVIII, 1303.
67. TEWKSBURY, W. D. The treatment of non-tuberculous lung abscess with pneumothorax—report of ten cases. *J. Am. M. Ass.*, 1918, LXX, 293.
68. WESSLER, H., and SCHWARTZ, H. Abscess of the lungs in infants. *Am. J. Dis. Child.*, 1920, XIX, 117.
69. WHITTEMORE, W. Lung abscess from a practical point of view. *Surg., Gynec. & Obst.*, 1920, XXXI, 144.
70. WHITTEMORE, W., and CHAFFIN, G. L. Extrapleural thoracotomy for advanced unilateral pulmonary tuberculosis: report of a case. *Boston M. & S. J.*, 1921, CLXXXV, 140.
71. YANKAUER, S. Two cases of lung tumor treated bronchoscopically. *Med. Rec.*, 1921, CXV, 241.
72. YATES, J. L. The relative value of various operative procedures employed in acute empyema. (Discussion). *J. Am. M. Ass.*, 1920, LXVI, 1001.

ABSTRACTS OF CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Blake, J. A.: Drainage. *Ann. Surg.*, 1922, lxxv, 385.

During the war the importance of dependent drainage was emphasized by experience with gunshot injuries, but it was found also that drainage was not necessary when there was no dead or necrotic tissue in the wound and that this held true also in infections of the cavities of the body and the viscera.

A distinction should be made between an incision used merely to evacuate the products of inflammation from a cavity and to allow these products to escape for a short time, and drainage which is continued for a longer period by means of drains.

In articles published in 1903-04 the author reported that the mortality in cases of undrained diffuse peritonitis was markedly lower than that of drained cases. Subsequent experience has demonstrated that the drains themselves, by pressure and foreign-body irritation, cause the persistence of peritonitis which otherwise would subside. In an ordinary diffuse peritonitis, however severe, drainage is unnecessary, but in local peritonitis, such, for example, as that due to an abscess, drains should be used.

Drains traversing the joints are fatal to the joints. The author found that his results were greatly improved by using short drains which only entered the joint. Mention is made of the remarkable results obtained by Wilms, who did not use drains at all, but after making an incision relied on active motion to prevent accumulation.

In the treatment of empyema the author endeavors to approach the ideal of keeping patent the wound in the thoracic wall by using tubes just long enough to keep the pleural cavity empty. In some cases with active resistance to the infection and extensive fibrinous exudate, immediate resolution was obtained by cleaning the cavity out by hand through a large incision, drains being dispensed with. It is safe to dispense with tubes if after evacuation no visible foreign material, such as adherent fibrin, remains.

Other cases raising the question as to whether the usual method of drainage by tube is detrimental are cases of cholangitis. In those which have been drained only to the opening in the common bile duct the discharge has cleared more quickly with less suppuration than in those in which the drain was introduced into the duct, ceasing in a few days instead of after as many weeks.

In the author's opinion drainage of the viscus is not practiced frequently enough in cases of advanced peritonitis with paralytic ileus. A secondary ileostomy has saved life in many such cases and should more often be a primary operation. All that is necessary is the suturing of a soft catheter with catgut to the margins of a small opening in the lower part of the ileum and inversion of the wall with a couple of pursestring sutures so the stoma will close when the catheter is withdrawn after two or more days when the catgut becomes loosened.

In cholecystectomy and resections of the colon, a slip of rubber dam is sufficient to form a lead for the escape of discharges. Drainage must be employed if retroperitoneal spaces are opened, particularly in retroperitoneal ureterotomy.

Gauze is useful as a packing in certain classes of wounds but is not a good drain, for while it is an effective filter and allows serous secretions to pass through it, it acts as a dam to the solid necrotic portions which form the food upon which bacteria grow.

The indications for its use are, first, as a pressure hæmostat, and second, to prevent the falling of the soft parts into cavities during the early stages of repair. Except when employed as a hæmostat it should be separated from the wound surfaces by rubber or some other non-adhering material. The true indication for rubber tubing is the presence of a large quantity of material, particularly solid material, to be evacuated, as in the urinary bladder, the gall-bladder or ducts, the intestines, and wounds containing solid necrotic material.

For precautionary drainage silkworm gut and folded rubber dam are excellent as they do not cause pressure necrosis, they efficiently drain off fluid secretions, and they form a lead along which larger drains may be inserted if necessary.

CORBIN C. YANCEY, M.D.

Parce, A. D.: An Improved Method of Skin Grafting. *Ann. Surg.*, 1922, lxxv, 658.

The Esser epithelial inlay method was used. This necessitates accurate coaptation of the graft throughout the area to be epithelized and firm pressure and tension over this area. These three factors prevent the accumulation of secretion under the graft and also to a large degree prevent the condition of passive congestion or venous stasis which,



Fig. 1. Various steps in the preparation of the mold and the application of the graft inside out.

as is well known, destroys the viability of a graft after three or four days.

The operation to be described has been of particular value in treating old contracted scars with poor nutrition and often with indolent ulceration which it was impossible to sterilize or to cover with healthy granulations, and has served to break the continuity of painful or contracted scar tissue without ulceration which had prevented the full function of a part. It has been used also to fill in cavities or bony defects due to chronic osteomyelitis. The area treated is ultimately covered with epidermis of normal appearance, a desideratum of no small consequence when cosmetic results are desired.

The technique consists in the usual preliminary preparation and the use of the same instruments as those employed for a simple Thiersch graft plus a sterile dental modeling composition. The dental composition is first softened in hot water, then molded over the surface to which the graft is to be applied, and then placed in cold water to become hard.

If the surface treated is broad and flat, the molding of the composition may be facilitated by compressing it between two sterile wooden tongue depressors or it may be rolled flat and to a suitable thickness with the round handle of some instrument.



Fig. 2. Graft in position, showing method of suturing to hold the mold and the graft in place during convalescence.

This layer of composition while soft is then held in firm contact with the area to be epithelized to obtain an exact impression of the deformity to be treated. If the deformity is a cavity or depression, a sufficient amount of the softened composition is used to fill the defect entirely and is held there by firm pressure until it is hardened sufficiently to permit its removal. It will then bear the imprint of every crevice to be covered with the epithelium.

A full-thickness autoplasmic graft through the dermis into the subcutaneous plexus, but free from fatty tissue, is removed with a razor in the ordinary manner, turned inside out over the impressed surface of the composition, and held under tension against it by means of fine catgut sutures approximating the free edges of the graft across the blank surface of the composition. Several grafts may be necessary to cover the surface of the mold.

The skin about the area to which the graft is applied is slightly undercut so that the margins of the composition with the graft overlying them will slip under it. The graft is then placed in position and adjusted, this adjustment being made more accurate by momentarily applying to the composition a compress soaked in hot saline solution to soften it slightly, when firm pressure will permit

such readjustment as is necessary in the composition after the skin has been applied over it.

The skin margins surrounding the area made free by undercutting are now sutured with fine catgut to those portions of the graft in apposition to them, a step which serves the double purpose of holding the graft in position and maintaining tension upon it. A large dressing with a firm bandage is then applied over the whole area and left undisturbed for a period of eight to ten days, when the sutures holding the graft to the mold are cut, the edges of the composition are gently lifted so as not to disturb the graft, and the entire mold is removed.

Eight cases are reported and two others are mentioned in which a very satisfactory result was obtained.

CARL R. STEINKE, M.D.

ANÆSTHESIA

Ryan, C.: Combined Anæsthesia. *J. Iowa State M. Soc.*, 1922, XII, 181.

The term "combined anæsthesia" is applied to the use of two or more compatible drugs for the induction of anæsthesia or analgesia. The use of morphine or pantopan with atropine or scopolamine as a hypodermic preliminary to either general or local anæsthesia constitutes combined anæsthesia. These narcotics reduce the amount of the anæsthetic required, inhibit salivary secretion, minimize the emotional influences, and combat the development of acidosis. It is well known that ether, chloroform, and nitrous oxide cause an increase in the acidity of the blood in proportion to the depth of the narcosis.

The psychology of anæsthesia and surgery has been advantageously studied for many years. With the development of anoci-association, both physical and psychologic shock have been controlled to a large extent. With the use of the Crile and Lower methods the author obtained a reduction of 50 per cent in the mortality and morbidity in approximately 2,000 operations.

The essential points to be observed are summarized as follows:

Courteous and careful consideration should be given the patient from the moment he enters the hospital. Drastic purgatives should be withheld. If indicated, a mild cathartic may be given two nights before the operation and followed by flushing of the bowels on the following morning and proctoclysis of sodium bicarbonate-glucose solution by the Murphy drip method for the rest of the day and for twenty-four hours after the operation. A hypnotic should be given the night before the operation to insure a good night's sleep. The preliminary hypodermic should be given one hour before the operation, and the patient not disturbed until he is to be taken to the operating room, which should be done with as little handling as possible.

If local anæsthesia is not to be used, a light general anæsthesia is advisable, induced preferably with nitrous-oxide-oxygen followed, if necessary, by

ether, the amount to be judged by the anæsthetist. The operating field is blocked with a $\frac{1}{4}$ to $\frac{1}{2}$ per cent solution of novocaine and adrenalin to which, if indicated, $\frac{1}{6}$ per cent quinine-urea may be added. The technique is the same as when a local anæsthetic is employed alone.

For the successful use of combined anæsthesia the operator must have mastered local anæsthesia. Conscientious after-care of the patient until recovery is complete is, of course, essential.

BEN MORRAN, M.D.

Calcagno, B. N.: Arterial Anæsthesia (Anestesia artériale). *Semana méd.*, 1922, XXIX, 661.

The name of Goyanes is associated particularly with the history of arterial anæsthesia. Goyanes' first experimental work on dogs, the injection of cocaine into the femoral artery, was reported in 1909. Oppel of Petrograd also did much along this line. Goyanes stated that this form of anæsthesia gives excellent results and that when the dosage and solutions recommended are employed it is safe. It is adapted particularly to the surgery of the limbs. An Esmarch constrictor is used to interrupt the circulation. About 30 c.cm. of a 50 per cent solution of novocaine diluted to about half in a 4:1,000 physiological solution are injected into the selected artery. Any artery of the limb may be chosen. The anæsthesia obtained is absolute and spreads to the extremity of the limb. The fibrous tissues, however, do not become so desensitized as the nervous tissue. In 1912 Goyanes reported that he had only two failures in seventy clinical cases in which he had used the method.

The inconveniences of the procedure are that it requires prior isolation of the artery and the Esmarch band causes compression pain.

The author has employed arterial anæsthesia in a number of cases, which he reports in detail. He first employed stovaine but as a series of experiments on animals demonstrated that stovaine has a hæmolytic action he discontinued its use.

Experimental studies of the effects of novocaine on the blood showed that it fully meets all the requirements of arterial anæsthesia and has only a slight effect on the red corpuscles and the vascular walls.

To illustrate his technique Calcagno reports a case of comminuted fracture of the tibia and fibula of the right leg causing traumatic shock. Five hundred cubic centimeters of physiological salt solution were first administered and the usual shock treatment was given. Arterial anæsthesia was obtained by injecting 20 c.cm. of 1 per cent novocaine diluted in 8:1,000 physiological salt solution. Anæsthesia which permitted amputation without the least pain was obtained in five minutes.

Arterial anæsthesia is most applicable to the lower limb. The only contra-indication of real importance is an infectious or suspicious lesion where the arterial puncture would be made.

W. A. BRENNAN.

SURGERY OF THE HEAD AND NECK

HEAD

Sheffield, J. M.: Cholesteatoma of the Temporal Bone, with the Report of an Unusual Case. *Boston M. & S. J.*, 1922, (January), 877.

Accumulated evidence tends to prove that cholesteatomata of the temporal bone are usually secondary, their primary occurrence in this region being rare. It is still an open question whether the tumefactions embedded in the petrous portion of the temporal bone penetrate the tympanic cavity during growth or originate in the middle ear and wear the bone away by pressure.

Cases of primary cholesteatoma of the mucous membrane of the tympanic cavity have been reported in which symptoms of inflammation and perforation of the membrane were absent. A cholesteatoma may attain considerable size without causing demonstrable signs of bone necrosis or absorption. Sclerosis with defects and excavations is often found. Extensive necrosis may expose the dura, the lateral sinus, and the semicircular canals. Bony changes are due to continuous pressure of the mass and atrophy associated with pathologic changes in the lining of the middle ear.

The author's case was that of a woman aged 25 years who, for seven weeks, had had a discharge from the ear and facial paralysis. The left ear contained a polyp the size of a bean, which had its origin in the upper portion of the drum, and a purulent exudate. Night noises with nystagmus and vertigo was experienced. The patient stated that once in childhood she had had a discharge from the ear and there had been some pain in it ever since.

Removal of the polyp revealed a large perforation of the drum. Probing through the perforation demonstrated a fibrinous, pulpy mass which did not bleed and could not be removed with the curette. At operation through the usual mastoid route the bone was so soft and friable that the whole cortex broke away. When this occurred a tumefaction the size of a small hen's egg, with a soft necrotic center, was exposed. This growth occupied the tympanic cavity, mastoid process, and the squamous portion of the temporal bone and dipped into the posterior cerebellar fossa. The eroded mass adhered to the inner wall of the lateral sinus for about $\frac{3}{4}$ in. Further bone necrosis exposed the dura above the lateral sinus. The same condition was found over the semicircular canals and the facial ridge, but there was no fistulous opening in the latter area. Where the growth extended in the eustachian regions it was soft and ragged. In the first part of the operation, to prevent recurrence, a periosteal flap dissected free from skin and bone was tucked anteriorly and posteriorly over the exposed bone, another flap from the posterior portion of the external canal was stretched to the periosteal flap, and both flaps were held in position by gauze packing.

Two days after the operation the facial paralysis, headache, vertigo, and nystagmus disappeared. The patient was discharged from the hospital at the end of two weeks, and in eight weeks the discharge from the ear ceased.

The striking feature in this case was the extensive necrosis progressing during such a great length of time and the short duration of the symptoms. The author quotes Politzer as stating that the prognosis depends on the location of the cholesteatoma and the ear changes present.

Permanent cures are rare after either spontaneous expulsion or conservative treatment. In many cases a cure is obtained only after the middle ear spaces have been exposed through the meatus or mastoid process. S. J. HARBRECHT, M.D.

Arquellada, A. M.: A New Case of Occipital Encephalocele Which Was Cured. (Un nuevo caso curado de encefalocele occipital. *Polivista espan.*, 1922, M, 20.

Arquellada operated upon an occipital encephalocele in a child 7 days old, which was larger than the child's head. Perfect recovery followed.

Histologically, the growth was a hydro-encephalocele which showed numerous deformed neuromata, the tissue being gliomatous rather than neuroglie and having characteristics which suggested an ectopic tumor.

In Arquellada's opinion this case verifies the theory of Velasco Pajares that encephalocele is congenital and due to the presence of ectopic tissue which inhibits the normal development of the bone.

W. A. BRENNAN.

Aboulker, H.: The Diagnosis of Silent Intracranial Abscess During the Ambulatory Period. (Le diagnostic des abcès intracrâniens silencieux à la période ambulatoire). *Presse méd.*, Par., 1922, xxx, 474.

Intracranial abscesses of non-traumatic origin may arise from suppurations of the perinasal, frontal, ethmoid, or sphenoid sinuses, but the great majority are of otitic origin. Such abscesses are not rare but are generally unrecognized. They are usually situated in the temporo-sphenoidal lobe or the antero-external part of the brain, zones almost silent. Even if very large and destructive they do not cause marked symptoms and frequently are found only at autopsy. A patient with a lesion of this kind may walk about for months.

However, although the classical symptoms of brain abscess are generally lacking in such cases, there are always two which are pathognomonic, viz., cephalalgia and clouding of the intellect with depression, which may be accompanied by slowing of the pulse, hypothermia, and vomiting, and in rare instances by choked disk and localized pressure pain. Cephalalgia and mental depression in a

patient with a nasal or otitic suppuration should excite alarm. These signs appear very early, while the patient is still active, and usually are considered as due only to migraine or neurasthenia. The presence of motor or other signs of an intracranial process cannot be depended upon.

The author gives the history of ten illustrative cases of extradural, cerebral, and cerebellar abscesses of silent evolution.

In three cases of extradural abscess and four cases of brain abscess choked disk, localized pain, and motor and sensory signs were absent. The pulse was generally slow and the temperature was normal, elevated, or subnormal. Vomiting was rare. Cephalalgia was probably present in all cases but in some was not mentioned by the patient. Mental depression was marked in every case of brain abscess and in the cases of extradural cerebellar abscess with a grave evolution.

In Aboulker's opinion exploration of the dura should always be done when there is suspicion of a meningo-encephalic reaction, and exploration of the brain and cerebellum should be done only when the exploration of the dura mater is negative. As encephalitic abscesses are almost always fatal when far advanced, the importance of early diagnosis is apparent. Exploratory trephinations and punctures should be done under local anesthesia. Chloroform is very dangerous; Aboulker believes it was responsible for two deaths in his series of cases.

W. A. BRENNAN.

Miller, E. A.: *Calculi within the Brain: Report of a Case of Intracranial Calcification with Successful Operation and Recovery.* *Surg., Gynec. & Obst.*, 1922, xxxiv, 786.

Up to 1916 only seven cases of intracranial calcification were reported in the literature. Those now on record comprise calcification in gummata, cyst walls, the pineal gland, basal and occipitoparietal tumors, cysticercus, brain abscess, aneurism of the internal carotid artery, the white substance of the brain, and the sella. Less than twenty cases of true bony tumors (osteoma and osteosarcoma) or tumors which have undergone calcification or ossification have been reported.

The author's case differs from those found in the literature in that the calculi within the brain substance were shown by the roentgen examination and successfully removed at operation. These calculi were solid, grayish-white stones composed almost entirely of calcium oxalate with organic material which was probably decomposed blood. They were irregular in shape, having many projecting nodes. One of them measured $\frac{3}{4}$ by $\frac{1}{2}$ by $\frac{1}{4}$ in., and another $\frac{3}{8}$ by $\frac{1}{4}$ by $\frac{3}{8}$ in. The third was about the same size but was crushed in its removal.

Intracranial calcification may be classified as follows:

1. That occurring in the walls of cysts or abscess cavities.

2. Deposits of "brain sand," e.g., the deposit of

lime in the pineal body. The deposits in the falx cerebri, the so-called psammomata, are classified by some as true tumors or osteomata.

3. Calcium deposits in the walls of brain vessels.

4. Deposits of calcium in true brain tumors. These include gummata and tuberculomata.

5. The true bony tumors—osteomata and osteosarcomata.

6. A class of calcified bodies which occur in the white substance of the brain upon the site of a peculiar degenerative process described by Bassoe and Hassin.

The author believes that in his case the deposits originated in the tissue spaces after a primary colloidal degeneration following some severe intoxication causing disturbance of metabolism and defective drainage of the tissue fluids.

JOHN D. ELLIS, M.D.

Bartlett, F. H., and Wollstein, M.: *A Clinical and Pathological Study of Brain Tumors in Young Children.* *Arch. Pediat.*, 1922, xxxix, 386.

In 4,563 autopsies performed at the Babies' Hospital in New York a neoplasm of the brain was found in only nine, an incidence of 0.2 per cent. The occurrence of brain tumors in adults is 1 per cent. Two of the children with such growths were girls and seven were boys. Their ages ranged from 2 weeks to 3 years.

In the detailed study of seven cases it was found that five of the neoplasms were located in the cerebellum, constituting infratentorial tumors, and two were in the cerebrum, constituting supratentorial tumors. All of the infratentorial tumors involved the vermis, extended into one lobe of the cerebellum, compressed the other lobe, and had distorted the medulla. One had extended into the pons and was accompanied by a cyst of the fourth ventricle. Another involved one of the cerebellopontine pedicles. None had formed metastases in other organs. The tumors were all large. They were situated under the pia, which was deep red or reddish-blue over the growth, and were very vascular. They contained small hæmorrhages and areas of necrosis. Hydrocephalus was present in every case. Histologically all five infratentorial tumors were gliomata of the astrocytoma type.

The two supratentorial tumors were dissimilar in location and structure. One involved the corpora striata, optic thalami, and corpora quadrigemini. Histologically this growth was a glioma. In the other case the tumor occurred in a child so young (the first symptoms being noted at 2 weeks of age) that its congenital nature could not be doubted. Histologically this tumor was a glioma sarcomatous or gliosarcoma. One boy with a glioma had a horseshoe kidney.

The symptoms produced by the growths were similar to those in adults, viz., spasticity, increased reflexes, and focal paralysis. Vomiting occurred in three of the seven cases as an early symptom, but in none was it unusual in frequency or of the ex-

plive type. Convulsions occurred in only one instance and then only a few hours before death. Infrequency of vomiting and convulsions in infants may be explained possibly by the fact that the intracranial pressure increases gradually and young brain tissue is extremely adaptable to gradual pressure.

The spinal fluid was increased only in the early cases. In one case it was yellow. An increased cell count was found in only one instance and the globulin was increased only in the case with the yellow fluid. In the latter the fluid showed a bloody tinge at autopsy which was ascribed to the marked hemorrhage and necrosis in the tumor.

H. W. FISK, M.D.

Grant, F. C.: Alcoholic Injection of the Second and Third Divisions of the Trigeminal Nerve: Clinical Results with a More Exact Technique. *J. Am. M. Ass.*, 1922, LXVIII, 1780.

The injection of alcohol into the three divisions of the trigeminal nerve is of great value in the treatment of the *douloureux*, as an adjunct to the treatment of painful growths of the face, tongue, and jaws, and in muscular spasm.

In order to standardize the methods of injecting the maxillary and mandibular divisions of these nerves an instrument called a "zygometer" was devised to give a uniform point of entrance for the needle through the cheek.

Clinical experience has coincided with anatomical studies. Injections of the maxillary division should be made from the 3 cm. mark. The needle should subtend an angle of 103 degrees from above downward in the horizontal plane, and 115 degrees from before backward in the vertical plane. The nerve is reached from 5 to 5.5 cm. from the surface.

Injections of the mandibular division should be made from the 2 cm. mark. The needle should subtend an angle of 90 degrees in the horizontal plane and 110 degrees from above downward in the vertical plane. The nerve is reached from 4.5 to 5 cm. from the surface.

The application of these facts to a series of injections materially reduced the percentage of failures to reach the nerve trunks.

H. A. MCKNIGHT, M.D.

Sousa, B.: An Enormous Nasopharyngeal Fibroma; Tracheotomy; Resection of the Left Superior Maxilla and Extirpation of the Tumor (Enorme fibroma nasofaríngeo; traqueotomía previa; ligadura de la carótida externa; resección del maxilar superior izquierdo y extirpación del tumor). *Arch. d. Hosp. Municipal de la Habana*, 1922, I, 5.

The case reported was that of a negress 25 years of age. The tumor first appeared four years previously. Two operations had been followed by recurrence. As it was deemed impossible to extirpate the growth by any of the usual methods, a tracheotomy was first done. The left external carotid was ligated and the upper maxilla on the same side re-

sected. The tumor was multilobular and pyriform. The largest lobule, which was 13 cm. long and the diameter of a small orange, was implanted by multiple insertions in the basilar apophysis, pterygoid fossa, and maxillary fossa. Section of these insertions was necessary to dislocate the tumor. It was extracted through the mouth. W. A. BRENNAN.

Schlaepfer, K.: Modern Methods of Facial Plasticity (Ueber gegenwaertige Methoden der Gesichtsplastik). *Schweiz. med. Wochenschr.*, 1922, LI, 383.

The basic ideas for this comprehensive thesis were obtained from extensive studies abroad. The author discusses in particular observations made in the Gillies Hospital, London, where, during the war, a large number of facial injuries were treated in 700 beds.

In order to obtain healing without a reaction, latent infections must be eliminated as much as possible. Intratracheal narcosis with the Shipway apparatus has been found valuable, but local anesthesia is employed for minor operations. Ligation is restricted as much as possible and careful suturing in layers is done to prevent secondary hemorrhages. Catgut has been found to be the best material for buried sutures, but for skin sutures horsehair is used.

In order to make Thiersch flaps adhere in irregular deep wounds, they are applied to a cast made of pliable rubber, according to the advice of Esser, and with the aid of this they are brought into close apposition to the substratum. Superficial flaps are covered with silver foil. If free skin flaps are transplanted, the subsequent shrinkage must be taken into consideration. In the use of pedicled flaps tension must be avoided. The pedicle is best protected against shrinkage by forming a tube of skin by suturing the skin edges together. The danger of necrosis is eliminated by hourly light massage and the application of packs moistened in warm sodium chloride solution.

Pedicled muscle is preferable to fatty tissue to fill out defects as it does not shrink. For the reconstruction of obliterated sections of the oral or eye cavities, the rubber-inlay method of Esser is of value. Smaller bony defects in the lower jaw are bridged by pedicled flaps of muscle and bone, and larger defects by freely transplanted bone. In all plastic operations several sittings give better results than large single operations. BRUNNER (Z).

Ivanissevich, O.: Some Results of Plastic Surgery (Algunos éxitos de cirugía plástica). *Semana med.*, 1922, XXIX, 382.

Ivanissevich describes and illustrates three cases in which free cartilage grafts were used to correct facial defects. The first was a case of congenital hare-lip. Preliminary operations consisted in closure of the anterior part of the maxillary fissure by suturing the gingival mucosa to the dental arch, the freeing of adhesions, and plastics on the lip. As the lower part of the nose was much flattened by a shortened subseptum, a tunnel was made in the subseptum

and into this a piece of costal cartilage was inserted and sutured. The general and æsthetic results were good and the graft was well tolerated.

The second case was a case of deformity and malposition of the external ear. A large portion of the auricular cartilage was resected and the remnant sutured to the periosteum of the mastoid region. The results were excellent.

In the third case a deep depression in the posterior part of the horizontal branch of the maxilla, the result of a healed osteomyelitic process, was corrected by excision of the scar, the insertion of a cartilage graft, and suturing of the stretched skin and cellular tissue over the graft.

W. A. BRENNAN.

NECK

Lahey, F. H.: Multiple Stage Measures in the Surgery of Severe Hyperthyroidism. *J. Am. M. Ass.*, 1921, LXXVIII, 1562.

In Lahey's opinion the operative mortality in cases of hyperthyroidism may be lowered by subjecting each patient to the procedure suited to the degree of toxicity he exhibits. Good surgical judgment is necessary in the choice of treatment.

In the most toxic case seen by Lahey at least a single injection of the gland with boiling water was possible. This procedure has not increased the

difficulty of removing the gland. The next stage is the ligation of a superior thyroid artery after preparation with morphine-scopolamine. If the patient's reaction to a preliminary gas-oxygen anesthesia induced at this time is satisfactory, the ligation is carried out, but if he reacts poorly he is returned to bed and the ligation is delayed until he shows improvement. When the ligation has been accomplished the patient is returned to his room and his reaction is carefully studied.

If he is satisfied with the patient's progress, Lahey ligates the other superior thyroid artery in a few days. After a suitable interval and careful study the ligation of one or both inferior thyroid arteries is done. Following this, the successive measures are the removal of one-half of the gland and then the removal of the other half.

Lahey emphasizes the fact that it is rarely necessary to resort to this long and trying procedure. Almost all patients who are unable to endure a thyroidectomy can easily withstand a double ligation.

The patient's reaction to the measure used is estimated by his pulse rate. The best time for each succeeding intervention is determined by his gain in weight and his pulse rate, and by the fall in his metabolic rate. Lahey makes especial note of the psychic tolerance acquired by a patient after repeated trips to the operating room.

R. M. WATKINS, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Nasaroff, W. M.: Resection of the Sternum for Tumor (Ueber die Sternumresektion wegen Tumoren). *Verhandl. d. russ. Chir. Geseh.*, Petrograd, 1921.

Tumors of the sternum are not frequently observed. To the eighteen cases described in the literature the author adds another which was operated on by Oppel. The patient, a woman 25 years of age, stated that the tumor had been present for five years. Following an injury occurring six months previously it had increased in size.

In the clinic it was found that the growth extended over the entire body of the sternum, but its center was somewhat to the left of the median line. It was of bony hardness and was crossed by a groove which divided it into halves. The third and fourth costal cartilages on both sides were firmly adherent to it. The X-ray plate showed it to be hemispherical in shape and that it extended into the mediastinum.

The symptoms consisted only of a sensation of heaviness in the sternum and dyspnoea.

Under anesthesia induced with Shoemaker's positive-pressure apparatus, both pleural cavities were opened and the tumor was entirely resected. The left pleural cleft was stitched up without difficulty, but on the right side a large defect remained.

To close this defect the lung was sutured to its margins, the pressure in the apparatus being reduced.

Uneventful recovery followed. At the end of ten days the patient was able to leave her bed.

Microscopic examination showed the tumor to be a myxochondroma. At the end of six months there were no signs of recurrence and no symptoms.

GIRGOLOFF (Z).

Duval, P.: The Results of Unilateral Intrathoracic Surgery with Non-Adherent Pleura. (Les données actuelles de la chirurgie intra-thoracique unilatérale en plèvre libre). *Presse med.*, Par., 1922, XXX, 400.

In Sauerbruch's opinion surgical pneumothorax is dangerous and therefore in all thoracic operations a pressure chamber should be used. Bazy, on the other hand, believes that the views of Sauerbruch are based on an erroneous conception of thoracic physiology and animal experimentation and that unilateral surgical pneumothorax is innocuous as compared with traumatic pneumothorax.

Graham, using the dog, in which the pleuræ communicate, has shown that a complete pneumothorax is compatible with life. By a complicated algebraic formula he found also that about 65 sq. cm. is the maximum thoracic opening which is safe, thus confirming the views of Garré and Quincke that the

larger the opening the greater the pneumothorax and the attendant danger.

Duval cites experiments on the calf, which has separate pleura, indicating that Graham's findings are false and that a complete unilateral pneumothorax, with a very large opening in the thoracic wall and complete collapse of the lung, without respiration of any kind or the so-called "pendulum breathing," causes no dyspnea or change in the cardiac rhythm and only a slight change in the arterial pressure. Duval attributes the absence of dyspnea and cardiac disturbance to the absolute immobilization and collapse of the lung, a state of immobility usually lacking in traumatic cases in which there is still a movement of air causing very grave reflex symptoms.

Duval cites his results in over 100 cases of intrathoracic surgery, in which there were only two deaths. The procedure he used in these cases was the same as that he employed in the animal experiments. A very large opening was made in the thoracic wall, the thorax was completely immobilized by a powerful retractor holding the ribs and the corresponding half of the diaphragm, and the residual air in the lung was expressed by moist compresses. There were no untoward symptoms.

In cases of wounds it is a great advantage to have the lungs collapsed as they are then much more easily examined and sutured because hemostasis can be obtained more readily. If operation is done in such cases without complete deflation of the lung tissue there is danger of infection of the pleural cavity by the blood which has been in contact with the air and has escaped under pressure. The so-called "dansen" of the lung due to the same cause can be eliminated by compression.

Duval uses ether anesthesia, does not drain the pleural cavity, and withdraws the air slowly through a Pezzer rubber tube under fluoroscopic control. He believes the pressure chamber should be reserved for bilateral surgery of the lungs and has no place in unilateral surgery.

HENRI DUVAL, M.D.

Peck, C. H., and White, W. C.: Tumors of the Breast. *Ann. Surg.* 1932, lxxv, 641.

This report is based on a series of 331 cases of tumors of the breast, 41 per cent of which were benign and 59 per cent malignant.

The benign tumors and cysts analyzed from the pathologic standpoint were as follows: single cysts, 23; localized cystic mastitis, 16; generalized cystic mastitis, 11; papillary cystadenoma, 9; galactocoele, 2; adenofibroma, 50; intracanalicular fibroma, 14; tuberculosis, 3; lipoma, 7; and hamatoma, 2.

The types of operation performed were: complete mastectomy, 15; complete mastectomy with axillary dissection, 10; partial mastectomy, 17; and local excision or enucleation, 90.

The types of incision were: curved at the lower border, 81; radial, 16; curved at the areola, 1; oblique ovoid, 22; and transverse ovoid, 12.

Benign tumors or cysts of the breast can be

definitely diagnosed at the operating table in a large percentage of cases, and should be treated by conservative surgical procedures. Mutilating radical operations for such conditions are unnecessary and are a confession of ignorance or timidity on the part of the surgeon.

A trained pathologist should be present at the operating table to assist the surgeon in determining at once the nature of the pathologic process.

Cysts of the blue-domed type and localized and generalized chronic mastitis are neither malignant nor precancerous conditions.

Non-encapsulated tumors of the adenomatous type form a borderline group. They are by no means always precancerous, and in the cases of younger women radical operations should be avoided if possible. In older patients, and when the amount of breast tissue involved is considerable, radical operation may be indicated.

Multiple primary tumors or cysts are rarely malignant. Possible exceptions to this rule, e.g., a carcinoma developing in a breast already the site of a benign tumor, were not observed in this series. This rule does not apply to advanced cases of carcinoma with outlying nodules which are really secondary deposits.

When possible, conservative operations should preserve the contour of the breast, and incisions should be so placed that the cicatrix will be inconspicuous. The curved incision at the lower border (Warren) best meets this requirement.

Of the 195 cases of malignant disease four were cases of sarcoma and 191 were cases of carcinoma. Follow-up reports were obtained in 118 cases. Fifty-nine patients were dead or alive with recurrence, while fifty-three were alive and well, twenty-seven having passed the first-year period.

Complete mastectomy with axillary dissection was done in all of the 195 cases, excision of the thoracic portion of the pectoralis major muscle in 186, excision of the pectoralis minor muscle in seventy-one, division of the pectoralis minor muscle with re-suture in fifty-four, and excision of a part of the sheath of the rectus abdominis in twenty-three. Plastic or sliding flaps were used in eight cases and skin grafting was done in five.

The oblique ovoid incision or some modification of it was used in 114 cases, and the transverse ovoid incision of Stewart, which has been the incision of choice for the last six or seven years, was used in eighty-one cases.

The length of the time the tumor had been observed was found to be of little help in the diagnosis. The same may be said of the absence of retraction of the nipples, adhesions to the superficial or deeper tissues, palpable axillary lymph nodes, pain and tenderness, and a history of trauma.

The cases described as Paget's disease were frankly malignant. Both cases were lost to the recall system.

The one patient with sarcoma who was traced is well after nine years.

Postoperative X-ray treatment has been given as a routine procedure for the past three or four years, but the time that has elapsed is still too short to warrant conclusions as to its value. The authors believe that in certain cases it will retard or prevent recurrence. When recurrence was actually present the X-ray and radium were unable to effect a cure.

The histories of the 195 cases showed: retraction of the nipples in fifty-seven cases; ulcerated skin areas in sixteen; adhesion to the skin in ninety-four; adhesion to deep muscles in thirty-one; multiple nodules in nine (mostly advanced cases with secondary nodules); palpable axillary nodes in seventy-seven; involvement of axillary nodes at the time of operation in 109; previous lactation in seventy; no previous lactation in sixty-eight; previous trauma in fifteen; and pain and tenderness in fifteen. Only one of the patients was a male.

The pathologic examination showed: adenocarcinoma in seventy-eight cases; scirrhous carcinoma in fifty-three; medullary carcinoma in fifty-eight; Paget's disease in two; and sarcoma in four.

Of the fifty-nine patients traced who died or have a recurrence, forty-eight had involvement of the axillary glands at the time of operation. Of the fifty-three patients now alive and well, seventeen had involvement of the axillary glands; ten of these are well more than five years after the operation. Of sixty-three patients without axillary involvement seventeen are well more than five years after the operation.

Definite follow-up information regarding sixty-nine patients operated upon more than five years ago was as follows:

Dead or alive with recurrence, 42; with axillary metastases at the time of operation, 33; without axillary metastases at the time of operation, 9.

Alive and well, 27; with axillary metastases at the time of operation, 10; without axillary metastases at the time of operation, 17.

CARL R. STEINKE, M.D.

David, V. C.: Papillary Cystadenoma of the Male Breast. *Ann. Surg.*, 1922, lxxv, 652.

The most characteristic symptom of a papillary cystadenoma, in addition to the slowly growing tumor under the nipple, is a discharge from the nipple. The latter, which is present in about 75 per cent of the cases, is usually milky but may be bloody.

Local surgical removal may be followed by recurrence.

In view of the tendency to malignant degeneration shown by these tumors and their tendency to recur after local removal, it is generally believed that they should be treated by removal of the breast.

The following case is reported:

The patient was a man 82 years of age. Fifteen years previously he noticed a small lump under the left nipple and shortly afterward a milk-like discharge from the nipple. The latter persisted until the tumor and nipple were removed three years

later. About one year after the operation a small nodule developed at one side of the scar and grew slowly. Later two other nodules appeared near by and grew steadily for eleven years, finally becoming fused together and forming a three-knobbed tumor. This tumor was removed with all of the skin over it, the pectoralis major muscle, and the fascia. Four months later the patient was well and relieved of his discomfort.

The pathologic diagnosis was recurrent papillary cystadenoma of the ducts of the breast. The article contains photographs of the patient and a section of the tumor.

Eleven cases collected from the literature are reported briefly.

CARL R. STEINKE, M.D.

Cheattle, G. L.: Cancer of the Breast: Treatment of the Proemial Breast. *Brit. M. J.*, 1922, i, 869.

Cheattle draws attention to a potentially dangerous condition which he calls the "proemial breast" and urges the removal of the breast in this state rather than later when there is evidence of disease for which surgical measures have proved unsatisfactory. This condition is worthy of recognition for two reasons: (1) it is in a state preceding further pathologic changes of a highly important character—mainly simple papilloma, malignant papilloma, and other forms of cancer—and (2) its clinical recognition and adequate treatment occasionally enable the surgeon to recognize by microscopic examination the presence of one or more of these changes before any clinical sign of their existence is obtainable by other means. Once established, the condition of proemial breast is permanent.

In the earlier stages of this complaint there is continuous pain in the breast which is generally aching in character and not severe. The nodules of the breast are swollen, painful, and tender, or the whole gland is affected by the disturbance. There is an intermittent or continuous flow of serum from the nipple, but the discharge is small in amount.

In the later stages of the complaint the pain disappears and cysts are formed.

The author's treatment of proemial breast is removal. He urges bringing the preventive treatment of cancer of the breast into line with the preventive treatment of cancer elsewhere in the body.

JOHN D. ELLIS, M.D.

TRACHEA AND LUNGS

Zeuch, L. H.: Subcutaneous Rupture of the Trachea. *Illinois M. J.*, 1922, xli, 451.

To fifty-two cases of subcutaneous rupture of the trachea collected from the literature the author adds the case of a boy of 7 years who struck his neck against the pedal of a tricycle over which he stumbled. Immediately after the accident an emphysematous swelling appeared in the neck and rapidly spread over the thorax, abdomen, and scrotum. Increasing cyanosis and marked dyspnea developed but there was no external sign of injury or hemorrhage.

Four incisions made in the skin over the front and back of the thorax as an emergency measure released air and decreased the cyanosis and dyspnea. The patient having been placed under ether anesthesia, the trachea was exposed through a thyroidectomy incision. It then showed an almost complete transverse rent between the second and third cartilages, only the posterior muscular coat remaining intact. Although the patient vomited and aspirated food into the trachea, the tear was closed completely by interrupted chromic catgut sutures extending around the contiguous tracheal rings. The wound was closed without drainage and healed by primary intention. The subcutaneous emphysema gradually subsided. Except for a slight cough lasting two weeks, the patient made an uneventful recovery.

In a study of the etiology of the reported cases, the damage to the trachea appeared to be out of proportion to the external strain, such as that due to throwing the head backward suddenly, straining during labor, coughing in bronchitis, and croup, and the expulsive efforts caused by the presence of a foreign body. Increased intratracheal pressure while holding the breath with the epiglottis closed seems to predispose the trachea to rupture from a light external shock.

In the cases in which autopsy was performed the death was due chiefly to suffocation caused by the presence of air and blood in the mediastinum.

Of twenty-nine patients treated by various palliative methods, such as the application of cold compresses, immobilization, etc., eighteen died and eleven recovered. Some of the latter suffered dyspnea afterward. Of eleven patients subjected to tracheotomy, eight recovered. Two who had secondary abscesses incised also recovered. Of three patients treated by blood-letting with other palliative methods, two recovered. Recovery resulted also in four cases given radical operative treatment. Patients who received immediate attention had less subsequent dyspnea. Twenty died within forty-eight hours. The total mortality was 24 per cent.

In conclusion the author states that the best results in subcutaneous rupture of the trachea are obtained by early diagnosis and radical treatment; that a blow over an inflated trachea may cause a serious injury which seems out of proportion to the force of the causative agent; that puncturing the emphysematous region is a valuable adjunct to the treatment, relieving cyanosis and dyspnea until radical measures can be instituted; and that the complete closure of the wound without a gauze pack may be tried first.

WALTER C. BURKE, M.D.

Yankauer, S.: Two Cases of Lung Tumor Treated Bronchoscopically. *N. York M. J. & Med. Rev.*, 1922, CV, 747.

In the first case reported the left main bronchus was occluded 2 in. from the bifurcation by a smooth

rounded mass which the author diagnosed as a fibroma.

Under local anesthesia the growth was removed pneumonally with the use of biting forceps. After the patency of the bronchus was re-established the patient began to improve, and within six weeks was free of all symptoms.

In the second case bronchoscopic examination revealed an intrabronchial mass which was granular in appearance and suggested malignancy. This case was treated by radium emanation placed by means of the bronchoscope, and the external application of a radium capsule. A symptomatic recovery followed and at the time this article was written (one month later) the patient appeared to be well.

RALPH B. BETTMAN, M.D.

Von Thun: Tension Pneumothorax: with a Case of Pneumoperitoneum (*Spannungspneumothorax mit einem Fall von Pneumoperitoneum*). *Ugesk. f. Læge*, 1921, LXXXIII, 1130.

Pneumothorax follows injuries to the thorax and lungs. Under certain conditions we have a tension pneumothorax in which the continually increasing pressure in one side of the thoracic cavity causes displacement and compression of the organs in the other side.

The conditions under which a tension pneumothorax occurs are:

1. The presence of a valve-like lesion of the lung.
2. Expiration with a closed glottis (painful, groaning respiration). Under these circumstances air is pressed from the other lung through the trachea into the injured lung by the action of the muscles of expiration.
3. The presence of a lesion of the thorax in addition to a lesion of the lung, which makes the expiratory power of the diseased side ineffective in comparison with that of the healthy side. In other cases marked compression of the lung soon occurs and at the following inspiration a pressure compensation develops so that the valvular action ceases.

4. A small lesion which does not permit the escape of air.

The treatment consists in one or more punctures. Immediately after the insertion of the trocar the air escapes under strong pressure. Recurrences are rare. As soon as the air is let out, the valve closes, quickly becomes adherent, and ultimately becomes firmly attached.

The signs of tension pneumothorax are a tympanic sound on percussion, a lagging behind of the involved side of the thorax in breathing, absence of the sounds of respiration, and displacement of organs.

Sudden death due to compression of the heart and large vessels is not rare.

The histories of three cases of tension pneumothorax and one case of pneumoperitoneum are given in detail.

SAXINGER, Z.

PHARYNX AND ŒSOPHAGUS

Urrutia, L.: Diffuse Dilatation of the Œsophagus (Algunas consideraciones sobre la dilatación difusa del esófago). *Arch. españ. de enferm. d. apar. digest.*, 1922, v, 150.

In Urrutia's opinion diffuse dilatation of the Œsophagus must be regarded as a congenital malformation with progressive development which is manifested at a certain time because of the development of Œsophagitis and secondary cardiospasm.

A clinical recovery follows forced division of the cardia. The author operated upon one case in this manner, making the division after a previous gastrostomy according to the Mikulicz technique. The result was excellent and to date has continued for two months. In Mikulicz's hands the method has given excellent permanent end-results. Urrutia regards it as better than cardioplasty, resection of the cardia, Œsophagogastronomy, Œsophagoplication, or vagotomy.

W. A. BRENNAN.

Suter, A.: A Contribution to the Pathology and Treatment of Zenker's Diverticulum (Beitrag zur Pathologie und Therapie des Zenkerschen Divertikels). *Schweiz. med. Wchnschr.*, 1922, lli, 342.

Suter gives a detailed report of a case of Zenker's pulsion diverticulum of the Œsophagus and discusses the pathologic anatomy and clinical findings of this condition. Two roentgenograms of his case are shown.

Zenker's pulsion diverticulum is a pouch in the posterior wall of the pharynx, immediately above the opening into the Œsophagus. As the wall has no longitudinal muscle at this point and as the ring musculature diverges, the pouching can occur very readily, especially when spastic conditions at the mouth of the Œsophagus occur as a result of hasty eating and the swallowing of large quantities of food at one time. The case reported shows very distinctly that, aside from the anatomical conditions, mechanical causes are also responsible. The patient, who habitually ate his meals hastily, developed a dysphagia which, though hidden by complications and therefore unrecognized for years, gradually assumed the character of a dysphagia due to a diverticulum.

The most important of the various symptoms of Zenker's diverticulum are discussed briefly. They include increased salivation, irritation exciting cough (often preceding the true dysphagia by years), the symptoms of stenosis, particularly the regurgitation of undigested food, swelling of the neck dependent upon the fullness of the Œsophagus, gurgling sounds in the neck, and a local point of tenderness.

The methods of examination to establish the diagnosis include sounding, roentgenoscopy, and Œsophagoscopy. The sound meets resistance at a typical site (about 24 cm. behind the teeth). With a second sound introduced alongside of the first, the Œsophagus can usually be penetrated. A roentgenoscopic examination with contrast media made in

the ventro-dorsal and oblique directions after evacuation of the diverticulum shows a hemispherical shadow sharply outlined below at the level of the jugulum without any process formation. Œsophagoscopy, which is always unpleasant and not always possible in the cases of older persons with a less elastic vertebral column, allows direct visualization and reveals also secondary changes such as ulcer formation.

A frequent complication of this condition is suppurative bronchitis. Often there is periodic aggravation of the pulmonary disease, due apparently to the penetration of the contents of the diverticulum into the air passages during deep sleep.

In the early stages the development of the diverticulum can be prevented by care in eating, but later operation is indicated. In the author's case the diverticulum was exposed under conduction anæsthesia, tied off like a hernial sac, extirpated, and the wound closed with an invagination suture. Primary healing resulted. Special care must be given in the after-treatment. The author prefers a one-stage operation.

HOFFMANN (Z).

Seifert, E.: Extra-Œsophageal Foreign Bodies (Ueber extraŒsophageale Fremdkörper). *Ztschr. f. Laryngol., Rhinol.*, 1922, xi, 46.

The diagnosis of extra-Œsophageal foreign bodies is discussed first. This is based on a history of the swallowing of a foreign body, difficulties in deglutition, possibly hæmorrhage and fever with signs of inflammation in the peri-Œsophageal tissue, and possibly emphysema, and symptoms in other organs difficult to interpret. The Œsophagoscope yields entirely negative findings or reveals the site of the penetration as a fresh, granulating, or healed wound.

Operation should be performed—especially if the site of the foreign body is in the cervical portion of the Œsophagus—when slight fever, difficulties in deglutition, and circumscribed pain on pressure are present, even though the X-ray findings may be negative.

To the six cases already reported in the literature the author adds a seventh which was cured by operation. The patient was a woman 52 years of age who swallowed a piece of bone. On admission to the hospital three days later she had difficulty in deglutition, attacks of coughing, hoarseness, and tenderness on the left side of the throat at the level of the lower margin of the larynx. There was no fever and no external swelling. Examination with the Œsophagoscope revealed only a small, fresh wound below the narrowing of the cricoid cartilage on the left side. External Œsophagotomy performed on the following day revealed nothing in the opened Œsophagus, but a piece of bone 6 cm. long and ½ cm. wide was removed from the loose connective tissue behind the Œsophagus on the left side. At the end of four weeks there was complete healing and no difficulty in swallowing.

KOCH (Z).

MISCELLANEOUS

Bernou, A.: *Therapeutic Oleothorax* (*L'oléothorax thérapeutique*). *Bull. Acad. de méd., Par.*, 1912, LXXVI, 417.

By "oleothorax" the author means massive intrapleural injections of oil. He has used this method with good results in the treatment of pulmonary perforation complicating artificial pneumothorax. It has been employed also in purulent tuberculous pleurisy. The greater part of the diseased serosa being thus given a continuous antiseptic bath, the tuberculous pyothorax rapidly subsides. The pus must be almost completely withdrawn, the oil must bathe the greatest possible surface of the pleura, the oil percentage of the injection must be high, and the bath must be maintained sufficiently long.

In one of the cases mentioned Bernou evacuated 1,000, 600, and 400 c.cm. of pus on three successive days and replaced it by massive injections of 4 to 7 per cent gummed. The final injection was 125 c.cm. of 10 per cent gummed. The oil is absorbed more or less rapidly. The gummed percentage is the higher the smaller the quantity of the injection, being 5 per cent in injections of from 400 to 600 c.cm. but 10 per cent in injections of from 50 to 300 c.cm. The injected oil must of course be sterile.

W. A. BRENNAN.

Cooley, T. B.: *An Unusual Case of Mediastinal Tumor*. *Arch. Pediatr.*, 1912, XXIX, 398.

A 7-year old boy with a mediastinal tumor suffered a sudden and severe attack of dyspnea during the night. Three years before he had been in the hospital for a few days with an attack of "bronchitis." His family history was negative. He was of medium size, pale, and rather thin. Respiration was somewhat rapid and labored, with frequent coughing. The upper left chest seemed fuller than the right, and presented a plexus of enlarged and congested superficial veins. Measurement showed the left side at the axillary level to be $1\frac{1}{2}$ cm. greater in circumference than the right. No cardiac impulse was visible. Examination was negative except that one pea-sized node was found in each axilla.

Percussion of the chest revealed an area of pronounced dullness extending from just outside the left nipple line nearly to the nipple line on the right, with fairly straight borders and reaching from the level of the clavicles to the diaphragm. Its greatest transverse diameter was 11 cm. On auscultation the breath sounds were greatly diminished.

X-ray examination of the chest showed an area of pronounced density corresponding very closely with that outlined by percussion. The mass seemed to fill more than half the thorax and had sharp borders which seemed slightly scalloped. The blood examination showed hemoglobin 80 per cent; red blood cells 4,000,000; white blood cells, 11,600; polymorphonuclears, 62 per cent; large lymphocytes,

6 per cent, and small lymphocytes, 32 per cent. The blood Wassermann was negative. One of the axillary nodes, removed later, showed nothing characteristic histologically.

On each of two nights following the patient's admission to the hospital he suffered a severe attack of dyspnea, the second of which was nearly fatal. Because of these, it was decided to resort to intensive X-ray treatment without further study. Fluoroscopic examination at the time of the first treatment revealed a walnut-sized mass in the epigastrium, near the median line, which was believed to be a gland. There were no further attacks of asphyxia after the first treatment. After three treatments a roentgenogram showed the area of density to be about 5 cm. narrower and distinctly less dense. The findings by percussion agreed with this. Breath sounds were better heard and the heart sounds distinct where they had been obliterated.

At the end of three months the boy had gained 7 lbs. and had good color and abundant energy. His white count had fallen to 8,000, the two sides of his chest had become equal, and the roentgen findings were practically normal. The distended veins of the left side of the chest disappeared during his stay in the hospital.

The author believes this case to be one of Hodgkin's disease or lymphosarcoma on account of the size and rapid development of the tumor in a child otherwise healthy and because of the variation in the density of the shadow. H. W. FINE, M.D.

Van Dongen, J. A.: *Congenital False Diaphragmatic Hernia on the Left Side* (*Hernia diaphragmatica congenita spuria sinistra*). *Nederl. Tijdschr. Geneesk.*, 1912, LXVI, 582.

A 38-year-old woman who had had two premature deliveries and was pregnant for the fourth time gave birth to a full-term child by normal delivery. The infant drew one breath after birth, cried faintly, and at once became dark blue. Artificial respiration, Schultz's swing, and other measures had no influence on the condition, the child dying immediately after it was born.

At autopsy the stomach, the colon, and several loops of small intestine were found in the left thoracic cavity. During artificial respiration the beating of the heart had been felt on the right side but not on the left side, and dextrocardia had been assumed erroneously. The heart and the left lung had been pushed completely over to the right side. It was evident that the right lung had breathed a little as a piece of it floated in water. The left lung was completely atelectatic.

Congenital and acquired diaphragmatic hernia are more frequent on the left side than on the right side, probably because the pleuroperitoneal foramen, protected by the liver on the right side, can close better on that side than on the left where it can be easily disturbed by the stomach and intestines. True and false diaphragmatic hernia must be

differentiated. In the latter the hernial sac, formed from the pleura and peritoneum, is absent and the condition is in reality a prolapse of the abdominal

organs into the thoracic cavity. The false form is six to eight times as common as the true form.

THOM (Z.)

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Holloway, J. K.: Lateral Ventral Hernia. *Ann. Surg.*, 1922, lxxv, 677.

Excluding umbilical, lumbar, and postoperative or traumatic types of hernia, we may define spontaneous ventral hernia as a hernia which appears at an abnormal opening in the abdominal wall without explicable reason, and usually presenting in or near the linea alba or the semilunar line of Spiegel. Crushes, blows, and falls on the abdomen are evidently to be considered as causative factors. In such cases the trauma sustained may obscure the spontaneous origin of a pre-existing hernia or sac.

Herniæ in the line of Spiegel are usually single but may be multiple. The patient may have been aware of the presence of an inconstant tumor mass in his side.

Sometimes the hernia may be seen or felt. The interstitial type presents more difficulties in the diagnosis. At times there is no protrusion or depression. In a fat person the hernia may be entirely hidden in subcutaneous fatty tissue.

Lateral ventral herniæ may be present for an indefinite time unobserved and entirely without symptoms. The patient may be aware of the presence of a disappearing painful tumor, but usually does not understand its significance. He comes to the surgeon because he associates the tumor with a certain amount of abdominal pain, burning, or tearing which hinders his work. Usually the tumor disappears when he lies down.

Palpation may reveal merely a painful spot. Sometimes a tumor mass may be felt which upon pressure reduces with an audible gurgle. In other cases the finger may locate an orifice. If the patient leans forward the tumor may appear. Anything which increases the intra-abdominal pressure may cause the hernia to protrude. Often, however, all efforts fail and a presumptive diagnosis is made only upon the subjective symptoms.

These herniæ are especially liable to incarceration or strangulation. The extremely distensible sac with a very narrow neck and orifice favors such a complication. Gangrene rapidly follows.

Operation consists in freely exposing and completely excising the sac and obliterating its orifice. The overlying structures are then to be closed in layers without necessarily overlapping the fascial or muscle plates.

In cases where the location of the hernia is indefinite we may accept the patient's idea of the location as a key to the situation and make our incision accordingly, though some operators prefer

to make a median laparotomy incision and search for the hernia from within, especially when it is concealed by a pendulous or obese abdomen or thick muscle walls.

I. W. BACH, M.D.

Watson, L. F.: The Importance of Early Operation in Congenital Umbilical Hernia. *Boston M. & S. J.*, 1922, clxxxvi, 875.

In cases of small congenital umbilical hernia the outlook is fairly good if the condition is recognized early and operation is undertaken while the sac is still moist and before the hernia has been increased in size by the taking of fluid into the stomach. Unless the hernia can be reduced and the opening closed by operation, the prognosis is very grave. Resection of viscera and incomplete closure of the defect are usually followed by death. Operations performed during the first few hours after birth give the best results but the mortality in such cases is about 20 per cent.

Cases of large hernia in which the viscera are irreducible and there is no chance of closing the opening are inoperable.

The two methods of operation are the extraperitoneal and the intraperitoneal.

The extraperitoneal operation is the procedure most frequently used because it causes the least shock and its mortality is lowest. The amnion and Wharton's jelly are separated from the underlying peritoneal layer of the sac without opening the abdominal cavity. The edges of the hernial opening are freshened on both sides, the sac is folded over and sewed in place, and the muscle and skin edges are brought together over it with strong sutures. The tendency of the wound to pull apart is lessened by the application of firm adhesive straps around the body.

The intraperitoneal operation is used when it is necessary to open the abdomen to examine the viscera or to deal with peritonitis. If reduction of the liver is difficult it can be facilitated by incising the linea alba to widen the opening and dividing the round ligament of the liver.

CARL R. STEINKE, M.D.

Maidágan, J. M.: Lumbar Hernia (Hernia lumbar). *Rev. méd. d. Rosario*, 1922, xii, 14.

Maidágan's case of lumbar hernia was that of a girl of 13 years. The abnormality first appeared as a small curved projection when the patient was 2 years old. A few years later she was treated in a hospital for a bone abscess beneath and to the left of the site of incurvation. At a later examination a lumbo-iliac tumor the size of a small orange was

found. A diagnosis of lumbar hernia was made and treatment by bandage recommended. In spite of this treatment the tumor increased in size. Operation revealed the hernia two finger-breadths below the iliac crest. It was easily dissected and the sac isolated. The sac contained loops of small intestine and the lower pole of the left kidney.

Following reduction of its contents the sac was ligated and resected and the hernial ring formed by the deep aponeurosis was sutured. The bone abscess had caused degeneration and atrophy of the surrounding muscles. The hernia had its origin in the triangle of Grynfelt. The child made an excellent recovery.

W. A. BRENNAN.

Summers, J. E.: Sciatic Hernia. *Ann. Surg.*, 1922, lxxxv, 672.

The etiology of ischiatic hernia is obscure. The condition occurs twice as frequently in the female as in the male, probably because the ischiatic notch in the female is slightly larger and the sacro-sciatic ligament is longer and more lax. It occurs also more frequently on the right side than on the left.

In the male these herniae are congenital or acquired, but in the female are always acquired and as a rule are caused by the pressure and trauma of labor. The hernia may contain intestine and omentum and any viscus or organ sufficiently movable to pass out of the pelvic cavity. It may be large, or so small that it is not perceptible to sight.

In the literature Summers has been able to find the records of only about twenty-five cases of ischiatic hernia. None was reported by an American surgeon. Summers believes that unless there are symptoms of strangulation, the hernia should be left alone. When interference is warranted by its size, an attempt may be made to close the opening from without. Lejars emphasizes the importance of performing the operation in an excellent light because of the depth of the hernial ring and the necessity of avoiding the large blood vessels. The author describes the technique of the operation in detail and reports the case of a man aged 35 years.

The article is well illustrated.

E. C. ROBITSHEK, M.D.

Stoppato, U.: Small Interrenal Accessory Rests in a Hernial Sac (*Corpiccolo interrenale accessorio in rapporto con un sacco erniario*). *Arch. ital. di chir.*, 1922, v, 253.

In the sac of a strangulated inguinal hernia on the right side associated with inguinal retention of the testicle in a boy aged 3 years the author found a so-called accessory suprarenal capsule. The term "accessory suprarenal capsule" he believes is incorrect in the majority of cases as the small bodies consist entirely of cortico-suprarenal substance and therefore should be called "accessory interrenal rests" and must be distinguished from true accessory suprarenal and pheochromine (chromaffin) bodies.

In the author's case the interrenal corpuscle was about the size of a lentil and adherent to the group

of veins of the spermatic cord at about a centimeter from the upper pole of the testicle. Usually such bodies are much smaller, being discernible only with the microscope. As a rule they occur in the genital tract.

According to Poll, isolated interrenal bodies may be classified into three groups: those of the suprarenal and renal region; those arising in the retroperitoneal space; and those of the genital tract. Besides the author's case, interrenal corpuscles were found along the spermatic cord only in the cases of Luckwood, Saint, and MacLennan. MacLennan found them seven times in 700 radical operations for hernia. They were included in the walls of the hernial sac, in the vicinity of, but not adherent to, the cord.

These corpuscles originate from apparently isolated embryonic mesodermal remnants. Their lack of medullary elements indicates their primary origin and explains their greater frequency in the genital tract as compared with true accessory suprarenals. The cortex of the suprarenal capsule is of mesodermic origin while the medullary part is of ectodermic origin.

W. A. BRENNAN.

Spackman, J. G.: Retroperitoneal Cysts: With Report of a Case. *Hahnemann Month.*, 1922, lvi, 350.

In 1913 Jacquot and Fairisse were able to collect from the literature only thirteen cases of isolated peritoneal cysts. Roth first pointed out that these cysts are embryonic in origin, arising from unused portions of the mesonephros or wolffian body. All previously reported cases have presented one or more parts of the wolffian body—glomeruli, ciliated columnar, or cuboidal epithelium. The dilated duct shows columnar epithelium lining a wall of fibrous connective tissue. The presence of glomeruli and tubules depends upon the failure of these structures to atrophy.

The cysts may be unilocular or multilocular. Their contents vary from a thick, viscid, jelly-like substance to a clear watery fluid. They may be opaque or chocolate colored. The growth may form between the layers of the mesentery, in the mesocolon, or in the region of, or slightly attached to, the kidney or pancreas, with the colon on its outer or inner side. Malignant degeneration may occur. The cyst may rupture into the general peritoneal cavity, causing peritonitis or peritoneal metastasis. No cases with dermoid characteristics have been reported although such might arise from the posterior portion of the wolffian duct which originates from ectoderm and mesoderm.

The patients present themselves because of an abdominal tumor the symptoms of which vary with its size.

The author reports the case of a 50-year-old woman with a history of severe lumbar backache extending over two years, a dull dragging pain in the lower right abdomen, and easily acquired fatigue which she attributed to overweight (270 lbs.). The

tumor extended from 4 cm. below the right costal margin to 10 cm. above the pelvic brim, and in its greatest diameter reached the midline at the level of the umbilicus. It was not movable with respiration or on manipulation. The percussion note was unchanged. The space between the last rib and the iliac crest was normal on both sides. The urine and blood examinations were normal.

At operation the cyst was approached through a right rectus incision and the posterior parietal peritoneum outside of the ascending colon which was pushed toward the midline. The cyst extended from beneath the liver to the pelvic brim. About 2,500 c.cm. of fluid were aspirated through a large trocar and half as much escaped through a large tear around the trocar. Because of the patient's condition, only the lower half of the cyst wall was dissected out and excised at the first operation. In the closure of the wound the remaining cyst wall was stitched to the upper end of the incision, packed, and drained. There was a copious discharge of semipurulent material. Seven days later the incision was enlarged upward and the rest of the cyst wall was excised. There was a large vein on the inner surface of the cyst, but no connection with the kidney or pancreas. The kidney was of normal size. The patient made a satisfactory recovery.

The cyst fluid was semipurulent, yellow-white, odorless, and sterile on culture. The cyst wall measured 25 by 14 cm. and varied in thickness from a few millimeters to 1.5 cm. Microscopically it consisted of dense fibrous connective tissue with lymphoid infiltration. The lymphoid areas were glandular in appearance and lined with epithelium. In arrangement the spaces lined with epithelium somewhat resembled kidney tubules.

The author states that in the diagnosis of an abdominal tumor of uncertain origin a retroperitoneal cyst should be considered. The treatment is early complete transperitoneal excision with careful protection of the peritoneal cavity.

WALTER C. BURKET, M.D.

GASTRO-INTESTINAL TRACT

Wollstein, M.: The Healing of Hypertrophic Pyloric Stenosis After the Fredet-Rammstedt Operation. *Am. J. Dis. Child.*, 1922, XXIII, 511.

The author studied the gross and microscopic changes in stomachs with hypertrophic pyloric stenosis obtained at autopsy on twenty-five infants ranging in age from 4 weeks to 2 years. Two of the children had died before operation and the remainder from twenty-four hours to two years after operation.

When observed before or soon after operation the stomachs were dilated often to twice the size of the normal stomach at the same age, were usually empty of food, and always contained a large amount of mucus with a thick plug in the pyloric opening. The pylorus was abnormally thick, hard, and increased in length. The pyloric thickening was due to increased width of the circular muscle

coat, which measured 3 to 7 mm. as compared with a normal thickness of 0.5 to 2.5 mm. The cardiac end of the stomach was always normal, although occasionally the pyloric half of the stomach was slightly thicker.

Microscopic examination showed that the changes were restricted to the circular muscle and submucosa. The submucosa was often edematous. The circular muscle was from two to three times thicker than normal because of a hyperplasia of the unstriated muscle cells of the circular coat. There was no increase in the connective tissue.

Healing after the Fredet-Rammstedt operation occurred through the connective-tissue cells of the serosa and submucosa. The unstriated muscle cells took no part in the process. Within nine days the wound in the pylorus was healed by a thin layer of connective-tissue cells. The pylorus became relaxed within two weeks. The stomach had returned to its normal size within a month, and the gap between the cut ends of the muscle coat had practically disappeared in six weeks because of contracture of the connective-tissue scar. At the end of two years only a thin line of connective-tissue fibers separated these two muscle ends, and the stomach was quite normal.

The author compares the results of the Fredet-Rammstedt operation, which cures the pyloric lesion, with those of the operation of gastro-enterostomy, which leaves the pylorus unchanged.

WALTER C. BURKET, M.D.

Urrutia, L.: The Operative Treatment of Gastric and Duodenal Ulcer (Contribución al estudio del tratamiento operatorio de la úlcera gástrica y duodenal). *Rev. de med. y ciruj. de la Habana*, 1922, XXVII, 201.

Urrutia's conclusions are based on 400 cases of gastric or duodenal ulcer operated upon since 1914. He believes that an active ulcer, whatever its situation, should be treated by gastropylorotomy with end-to-end gastroduodenostomy or gastro-enterostomy. Simple gastrojejunal anastomosis should be done only when the patient's general condition contra-indicates the radical operation or the latter is impossible because of technical difficulties. Under such circumstances a secondary gastrectomy will be necessary. Thermo-destruction is applicable only to a few cases of small ulcer near the cardia and should be supplemented by gastro-enterostomy.

The danger of gastrectomy Urrutia believes has been exaggerated. If the technique is correct and the operation is done under general instead of spinal or splanchnic anesthesia its immediate mortality is not high and even though it may be higher than that of gastro-enterostomy its end-results fully justify its use.

The mortality in the 180 cases of gastro-enterostomy in the author's series of cases was 6.6 per cent. In thirty-eight cases pyloric exclusion was done, but the mortality of even simple gastro-enter-

ostomy was over 5 per cent. The author reserves this operation principally for cases in which the patient's condition contra-indicates the radical operation as he believes it favors the development of secondary jejunal ulcer more frequently than is generally believed. This complication occurred in 5 per cent of the cases. In spite of its higher mortality, extensive pyloro-gastrectomy is the operative method of choice. In 1919 the mortality in the author's cases was 6.6 per cent but in his last twenty-five cases there were no deaths. Contrary to the practice of English and American surgeons, the appendix is not systematically extirpated during an operation for ulcer. Appendectomy was necessary in only 10 per cent of the cases.

A posterior antiperistaltic gastro-enterostomy is usually done either vertically or obliquely.

Nineteen cases of acute perforation were treated. In five, the perforation was in the stomach, in thirteen in the duodenum, and in one in the jejunum. The mortality was 15.7 per cent. Urrutia believes that operation should be restricted to suturing of the perforation and cleansing and drainage of the abdominal cavity. A gastro-enterostomy may be done later if indicated. In some cases in which an immediate gastro-enterostomy was performed it was injurious. Gastro-enterostomy is advisable only when it is feared that closure of the perforation may considerably constrict the pylorus.

In ninety-eight cases of pyloro-gastrectomy subsequently studied chemically free hydrochloric acid was present in only eleven. A jejunal ulcer was found only once after gastrectomy, whereas in the series of 186 cases of gastro-enterostomy it occurred eight times. In Urrutia's opinion jejunal ulcer should be treated radically by resection of the anastomosis with the ulcer and extensive gastrectomy.

A jejunocolic fistula was found in eight cases. In seven the operation consisted in separation of the loops, separate suturing of each aperture, and a colocolostomy to overcome the stenosis of the transverse colon. Three of these patients died after the operation, and in the others the condition recurred.

W. A. BRENNAN.

Kotzareff, A.: The Surgical Treatment of Perforated Gastroduodenal Ulcers (*Perforation des ulcères gastro-duodénaux et leur traitement chirurgical*). *Ann. Chir.*, 1922, XIV, 115.

Kotzareff favors deferring gastro-enterostomy in cases in which, after suture of the perforation, complications such as intoxication, stasis, etc. arise because of the operative stricture. The danger of immediate gastro-enterostomy lies in the fact that the infection present in the abdominal cavity, the area of perforation, and the patient's mouth may cause the development of a second gastric ulcer in the operative lesions.

Kotzareff accepts the view that stomatitis, if not the only cause, is at least one of the factors responsible for the chronicity of round ulcer of the stomach.

Following the injection into the abdominal cavity of guinea pigs of cultures obtained from cases of mouth infection the animals developed peritonitis which caused death two or three days later. When 2 or 3 c.c.m. of sterile olive oil containing 2 or 3 m. of radium emanation were injected the day following the injection of the cultures the animals did not die. Radium emanation in olive oil is therefore bactericidal. The author suggests that it might be introduced into the stomach or painted on the area of perforation in clinical cases, and that gargling with radio-active water following operation might be beneficial. In this manner the abdominal cavity and the orifice of the ulcer could be disinfected, the infection in the mouth destroyed, and secondary ulcer prevented.

W. A. BRENNAN.

Lorenz, H., and Schur, H.: Our Experiences Concerning the Value of Antrum Resection in the Treatment of Peptic Ulcer (*Unsere Erfahrungen über den Wert der Antrumresektion bei der Behandlung des Ulcus pepticum*). *Arch. f. Klin. Chir.*, 1922, CLX, 219.

Of 208 patients subjected to antrum resection it was possible to carry out on fifty-five a complete subsequent examination consisting of a clinical examination, analysis of the stomach contents after a test meal, and X-ray examination. It was found that in a relatively large number the X-ray revealed rather large portions of antrum remaining although in each case the intention had been to resect it as completely as possible. The gastric acidity depended upon the size of the antrum remnant. Resection of about one-third of the stomach was nearly always sufficient to bring about a reduction of at least one-fifth in the acidity. In forty-five cases with no antrum there had been no recurrence of the symptoms of ulcer since the operation.

Simple retrocolic gastro-enterostomy with a short loop was the method chosen. In view of the rapidity with which this effect takes place it is not probable that the ulcer has become healed. The effect of antrum resection is immediate cure by means of resection of the ulcer, physiological cure or the prevention of recurrence through a decrease in the acidity, and further relief through rapid emptying of the stomach.

BODE (Z).

Van Hook, W.: The Problems and the Progress of Gastric Ulcer Surgery. *N. York M. J.*, 1922, LXV, 678.

It is evident that in the operative treatment of gastric ulcer occlusion of the pylorus is an unnecessary complication of gastrojejunostomy, and that in ulcer of the body of the stomach gastrojejunostomy is preferable to excision.

A large number of articles are quoted from American and foreign literature, some with very divergent views. The procedures recommended include the Billroth I and Billroth II operations, gastro-enterostomy with and without occlusion of the pylorus, excision of the ulcer, and resection of the part of the

stomach including the ulcer followed by gastrojejunostomy. The author draws the following conclusions:

1. Intelligent patients should be told that secondary operations must sometimes be done in order to give them the best chance for recovery under the least radical methods of intervention.

2. Gastro-enterostomy has its recognized place in cases of ulcer near the pylorus with symptoms of obstruction, especially if the patient is well cared for afterward.

3. Partial pylorogastrectomy after the Billroth I method has its place in the treatment of callous ulcers, multiple ulcers, ulcers remote from the pylorus, and cases complicated by perforation and penetration of the neighboring organs.

4. In the great number of ulcer cases not falling within these classes gastro-enterostomy should be regarded as properly fulfilling the surgical indications, although it must be admitted that failure to secure complete relief may be followed by the necessity for more radical intervention, i.e., extensive resection by the Billroth I method.

5. If such rather generous and conservative suggestions as to indications are followed, the surgeon of moderate technical ability will not find himself obliged to perform operations beyond his ability, and in the minority of cases in which little benefit has resulted the more extensive operation may be performed under chosen and favorable conditions.

I. E. BISHKOW, M.D.

Willensky, A. O.: The Cause and Prevention of Gastrojejunal and Jejunal Ulcer. *N. York M. J.*, 1922, CXV, 668.

The number of postoperative gastrojejunal and jejunal ulcers reported is growing. The problem as to their cause is important and very baffling.

The dominant factors which precede the secondary ulcerations are: (1) an operation, and (2) a pre-existing gastric or duodenal ulcer.

Various factors in the operative technique have been suggested as causes, viz., the position of the stoma, the use of clamps, the use of non-absorbable suture material, marginal necrosis, injury of tissues, etc. If these were of importance, however, the incidence of ulcer would be much greater.

The fact that an ulcer of the stomach or duodenum is associated with hyperacidity and changes in motility suggests that the latter conditions are the causes of secondary ulcer also, but it is believed today that the changes in chemistry and motor function are secondary to the ulcer rather than its cause. Moreover, the decrease in acidity immediately after gastro-enterostomy excludes the possibility that the changes in physiology are essential to the persistence of an unhealed defect.

The author has observed that secondary ulcer occurs only in those cases of gastro-enterostomy in which there was a pre-existing ulcer in the stomach or duodenum. This fact has led him to the conclusion that the same causes which produced the primary

ulcer are responsible for the secondary ulcer. As secondary ulcers occur only after gastro-enterostomy, some other operation, such as a pyloroplasty, the Billroth I resection of the stomach, or sleeve resection of the ulcer in the midgastric region, should be performed instead, if possible.

I. E. BISHKOW, M.D.

Wilkie, D. P. D.: Acute Intestinal Obstruction. *Lancet*, 1922, CCLII, 1135.

The subject of intestinal obstruction is one which illustrates the value to the surgeon of training in pathology. The cause of death in this condition has held the attention of laboratory workers for many years. The death rate of many acute abdominal maladies has fallen by over 50 per cent during the past fifteen years, but that of intestinal obstruction is still nearly 50 per cent.

Three types of obstruction are: (1) simple obstruction of the intestinal lumen such as that due to a gall-stone, a band, or stenosis; (2) isolated closed obstruction of a segment of gut without interference with its blood supply, such as acute obstruction of the appendix; and (3) obstruction of the lumen plus interference with the blood supply of a segment of gut, as in the various forms of strangulation.

The author found in experiments that the most rapidly fatal form of strangulation is that in which the venous return is interfered with while the arterial supply is not arrested completely. The animals died within a few hours after strangulation and without recognizable peritoneal infection. These experiments showed that shock, not toxæmia, is the cause of early death, and emphasized the importance of early operation and the use of morphia freely, subcutaneous injections of saline solution, and gas-oxygen anaesthesia.

Experiments have shown also that closure of a loop of duodenum will cause severe symptoms of toxæmia even when the continuity of the intestinal tract is preserved by gastro-enterostomy. Also that if the ends of the loop are left open toxæmia does not result although the ends seal themselves off. Most observers claim that the intoxication is due to the products of the split proteoses, and that if the duodenum is joined to the jejunum the animal will survive until the distended loop ruptures.

In experiments on the ileum the author found that in loops of intestine the toxæmia increased in proportion to the amount of putrefactive material present. Cases of obstructive appendicitis are more serious than those of the acute inflammatory type.

The danger in simple obstructions is less the lower the situation of the obstruction in the intestine. The rapid course in high obstruction is due partly to the loss of fluid by vomiting. This loss can be partly compensated for by the subcutaneous administration of saline solution, and distention can be prevented by the use of the stomach tube.

In high intestinal obstruction a toxin of the nature of a proteose is absorbed. What may be called the "poisonous proteose level" is the region before the

processes are broken up by the crepin of the intestinal juices.

The author's experiments show further that the toxic substances above an obstruction will not be absorbed by the sound gut if evacuation is not too long delayed and if there is no break in the surface of the intestine.

Obstructed material is not extremely toxic unless the tension is marked or the lesion is high up in the intestine, but its infectivity is always great. Therefore the practice of removing the obstructed contents is of doubtful necessity and incurs risk.

In the author's practice he does not drain the obstruction except in late cases with involvement of the poisonous peritoneal fluid and cases of high obstruction. It is sufficient to milk the poisonous contents down into the sound gut where it is to pass off. In this, pusdrain injections and enemata may be useful.

Death in cases of peritonitis may be due to acute obstruction caused by a newly formed band. Such obstructions may be relieved by simply draining the first loop of intestine presenting and pouring into the peritoneal cavity an oily substance to prevent immediate re-adhesion. In obstruction due to a tumor in the colon a carcotomy is the best treatment.

MARCUS HOBART, M.D.

Cignozzi, O.: Intestinal Occlusion Due to Kinking of the Small Intestine Caused by Membranous Pericolicitis Due to a Pedunculated Fibrinous Body (*Occlusione intestinale per ingloschiamento del tenue da pericolicite membranosa con corpo fibrinoso peduncolato*). *Polidita*, Rome, 1922, XXX, 302; *Chir.*, 245.

The case reported by Cignozzi gives him the opportunity to discuss the various types of membrane which may cause stricture of the small intestine and also the various theories regarding their origin. Of the latter Cignozzi regards as rational only those ascribing them to embryonic factors and inflammation.

To the embryonic type of pericolic membrane belongs the true Jackson membrane. Both the symptoms and the operative findings indicate its congenital origin.

The membranes due to inflammation may also cause obstruction of the fecal current and their inflammatory nature is clearly evident at operation. These are membrane formations arising from the appendix, cæcum, and other parts and are very different from the Jackson type of membrane.

There are other types of membrane the true nature of which it is difficult to determine as they possess characteristics which suggest a congenital origin and at the same time show evidence of inflammatory change. In such cases it is possible that inflammatory processes set up membranous pericolicitis in a congenital membrane of the Jackson type.

In cases of the true Jackson type of membrane, laparotomy followed by removal of the membrane has resulted in definite recovery without recurrence

In some cases of membranous pericolicitis, i.e., cases of membrane of inflammatory character, excision of the membrane has failed to bring about recovery and a subsequent operation on the intestine was necessary to re-establish the fecal current. Therefore in such cases it is necessary to remove not only the membrane but also the inflammation which produced it. The appendix, cæcum, and ascending colon are the points of origin of most of the exudative peritoneal inflammations and are involved in 90 per cent of the sero-fibrinous masses in the right half of the abdomen organizing into more or less extensive membranes.

W. A. BRUNNEN.

Thomas, T. T.: Acute Intussusception. *N. York M. J.*, 1922, CXV, 626.

This paper gives a report of four cases operated upon by Thomas and a review of the condition.

Acute intussusception is a form of acute intestinal obstruction. It is the most frequent cause of acute obstruction of the bowel in children. It may develop in any portion of the intestine, but as a rule begins at or near the ileocecal junction. Of 100 cases reported by Clubbe, the ileocecal junction was involved in all but two.

The diagnosis depends primarily on the symptoms of acute intestinal obstruction—severe abdominal pain, shock, vomiting, and constipation. There may be diarrhoea with tenesmus and a blood-stained mucous discharge. There is usually a sausage-shaped tumefaction which may be situated at any point along the large intestine. The most frequent sites are the sigmoid and rectum.

The most serious complication of the invagination is strangulation of the invaginated part of the gut. There is usually complete obstruction of the fecal current. If reduction is delayed, adhesions tend to develop between the invaginated and ensheathing portions of the intestine. In some cases, after this has occurred, the invaginated portion may slough and may be discharged through the rectum.

The treatment now is entirely operative. Operation should be performed as early as possible. In 374 cases Romanis did a simple reduction in 301, with a mortality of 26 per cent; reduction with appendectomy, in thirty cases, with a mortality of 40 per cent; resection with end-to-end anastomosis in thirty cases, with a mortality of 63 per cent; a colostomy in ten cases, with a mortality of 100 per cent; and a lateral anastomosis above and below the non-gangrenous intussusception in three cases, with a mortality of 33½ per cent.

If the symptoms have been present less than thirty-six hours, reduction will probably be possible. The real problem is to make a prompt diagnosis. If the diagnosis were as easy as in appendicitis the mortality of reduction would probably be less than that of appendectomy, and if operative reduction were done in all cases within twelve hours after the onset, there would probably be very few deaths from this condition.

O. S. PROCTOR, M.D.

Reinhard, W.: Arteriomesenteric Occlusion of the Duodenum (Der Arteriomesenteriale Duodenalverschluss). *Deutsche Zeitschr. f. Chir.*, 1922, LVIII, 310.

The author distinguishes two forms of arteriomesenteric occlusion of the duodenum: a neurotic form and an organic form. The two forms have elements in common. Acute dilatation of the stomach is always associated with atony or paralysis of the intestine, at least of the upper part of the small intestine. Therefore mesenteric closure of the lower portion of the duodenum may very easily result. If this does not occur, the stormy picture of high ileus is absent and the clinical picture is dominated by the acute dilation of the stomach.

In the organic form of mesenteric occlusion various pathologic conditions in the mesentery create a basis for the development of abnormal mechanical forces which are brought into activity by some external circumstance such as the shock of an operation or simple narcosis. In this case, dilation of the stomach is absent in the first stage, and clinical examination reveals motor unrest of the organ which is working convulsively to overcome the obstruction in the duodenum. Atony and dilation of the stomach are secondary. Therefore the condition sets in with severe symptoms of high intestinal occlusion.

In acute dilation of the stomach without duodenal constriction, siphoning off of the contents of the stomach may cause improvement, but in duodenal occlusion it is of no benefit. Hence siphonage is a valuable diagnostic and therapeutic aid.

In all cases Schnitzler's treatment by position and permanent drainage of the stomach through a nasal tube should be begun at once. Stimulation of intestinal activity and the administration of copious amounts of normal salt solution subcutaneously, intravenously, and by rectum are also necessary. Laparotomy should be considered only as a last resort. A gastro-enterostomy is of no benefit when the stomach is atonic and dilated. Anastomosis between the duodenum and the collapsed small intestine, gastropexy, enteropexy, the formation of a fistula, tamponade of the pelvis, etc. are measures giving only temporary relief or none at all. The operation which is simplest and most quickly carried out is exteriorization of the intestine to overcome the mesenteric traction, followed immediately by treatment by position and siphonage.

As a rule cases which are not helped by conservative treatment cannot be saved by operation. The prognosis of arteriomesenteric occlusion is very grave and becomes worse the later the condition is recognized and treated. In acute dilation of the stomach without occlusion the outlook is more favorable.

KONJETZNY [Z].

Gutiérrez, J.: Three Cases of Duodenal Diverticula (Divertículos duodenales, tres casos). *Semana méd.*, 1922, XXIX, 309.

Duodenal diverticula are rare. In 1911 Baldwin collected eighty-two cases from the literature.

Some authors believe that diverticula of the first portion of the duodenum are acquired and those of the second portion are congenital. In some cases a duodenal diverticulum opens into the pancreas and sets up the symptoms of chronic pancreatitis. It may be impossible to diagnose the condition clinically but the sac may be easily detected by the X-ray.

In all three of the author's cases the abnormality occurred in the first portion of the duodenum and the diagnosis was made by means of the X-ray. The first patient was a woman of 27 years who gave a history of epigastric pain for ten years. At operation two ampullar dilatations were found deforming the duodenal bulb. The gall-bladder was entirely normal.

The second case was that of a woman of 32 who complained of pain in the left hypochondrium, the epigastrium, and the right shoulder. At operation the gall-bladder was found adherent to the duodenum but was free from calculi. There was intense periduodenitis. Section of the adhesions revealed two slightly strangulated diverticula on the anterior surface of the first part of the duodenum. A gastro-enterostomy was done. Two diverticula were found also in the third case but the details of the case history are not given.

In none of the three cases was any of the bismuth found in the stomach or the diverticula.

W. A. BRENNAN.

Christie, G. W.: Acute Inflammation of a Large Diverticulum of the Jejunum with Perforation. *Brit. M. J.*, 1922, I, 990.

The case reported was that of a woman 48 years of age who had suffered for years with flatulence. Occasionally she had attacks of pains which kept her in bed for a day.

The last attack was ushered in by pain in the left side of the abdomen near the umbilicus, vomiting, and obstipation persisting for forty-eight hours. The left side of the abdomen was tender and slightly rigid. The temperature and pulse were normal. Palpation revealed a round mass the size of an orange.

The patient was treated expectantly and at the end of fourteen days from the onset of the trouble the mass, though still palpable and tender, was smaller and the other symptoms had subsided. At operation a diverticulum of the jejunum entirely covered by omentum was found about 9 in. below the duodeno-jejunal junction. When it was freed from the omentum foul pus and solid particles escaped and an area of gangrene was revealed. The mass was attached to the jejunum by a pedicle and at this point the bowel was somewhat constricted. The diverticulum was removed, the bowel repaired, and a lateral anastomosis between two loops was made. During the acute stage the diverticulum had undoubtedly ruptured but the spread of its contents had been prevented by the omentum.

I. E. BISHKOW, M.D.

Walsh, R. E.: Acute Perforated Meckel's Diverticulum. *Med. Times*, 1922, 5, 113.

The author's case was that of a 4-year-old boy. The onset of the condition was sudden with generalized abdominal pain. Vomiting occurred three times during the day. Bowel movements occurred only when enemata were given. The faeces were free from blood. The features were pinched, the face was flushed, and the right thigh was flexed on the abdomen. The abdomen was distended and rigid throughout. Tenderness was marked in the right iliac region. The urine was negative. There was a leucocytosis of 14,000 with 84 per cent polymorphonuclears. The pre-operative diagnosis was ruptured appendix.

At operation free pus escaped when the peritoneum was opened and a ruptured Meckel's diverticulum $2\frac{1}{4}$ in. long and about the thickness of the thumb was delivered into the wound. The diverticulum was divided into three parts by two constrictions. The point of rupture was 1 in. from its attachment to the ileum. The rest of it was acutely inflamed. The appendix was free from inflammation but was removed with the diverticulum. The abdomen was closed in the usual way after drainage by means of a rubber tube. The patient made an uneventful recovery. H. W. Fink, M.D.

Lefebvre and Baillat: Surgical Complications of Ascariasis and Postoperative Accidents (A propos des complications chirurgicales de l'ascariasis; accidents post-operatoires). *Progr. méd.*, Par., 1922, xxx, 612.

A few hours after laparotomy in persons carrying ascariasis a condition suggesting acute postoperative peritonitis often develops. The onset is rapid and characterized by vomiting, painful colic, peritonitis facies, a temperature not above 38 degrees C., and a pulse rate of 85 to 90. The abdomen is not distended and there is little drainage. The absence of intestinal paralysis is evidenced by the passage of gas when the symptoms are at their height on the second and third days. Only ascaria eggs are found in the stools but worms are vomited. The subjective symptoms are without relation to the objective signs. Following the use of calomel, santonin, thymol, etc., these alarming symptoms soon disappear. Conditions to be considered in the differential diagnosis are postoperative dilatation of the stomach and vomiting due to constipation.

The authors report four cases with quick recovery but have not observed true obstruction due to masses of worms. The action of the parasites may be exerted on the plexus in the gut wall or due to secreted toxic substances. The anesthetic may be provocative. HENRI DUBOIS, M.D.

Crittle, G. W.: Surgical Treatment of Cancer of the Large Intestine. *Pennsylvania M. J.*, 1922, xxx, 129.

Radium must be used carefully. If employed in sufficient dosage to affect the cancer cells which lie

beyond the farthest point which can be reached surgically, it may cause perforation. Radium perforations of the bladder or intestines are all but incurable by surgery. If the radium affects only the tissue which may be removed by operation, its use is scarcely worth while. Up to the present time the authorities vary as to the value of pre-operative radium treatment but they are agreed that after operation radium should not be employed until several days have passed.

Operations for rectal cancer should be done in two stages. A Littlewood type of colostomy, i.e., a high intermuscular opening, is first made, and the loop is opened from three to five days later. If the cancer is in the sigmoid, the splenic flexure, or the transverse colon, a carcotomy is done. If it is in the caecum or ascending colon, a preliminary anastomosis is effected between the ileum and the transverse colon.

The interval between the preliminary operation and the major operation is not fixed as the major operation is performed according to the general state of the patient and the local condition.

The advantages of the two-stage operation are:

1. There is a diminished chance of intra-intestinal pressure interfering with local repair.
2. The strain is divided so that the favorable conditions established by the preliminary operation make possible a more radical operation with greater probability of effecting a permanent cure.

The incision through the abdominal wall is made without regard to the direction or character of the structures divided, being determined by the conditions of the particular case.

The control of infection and toxæmia is promoted by conserving the bodily vigor as far as possible by increasing the local defense. This is done by giving transfusions of blood, by maintaining the water equilibrium by hypodermic infusions of normal saline, and by not permitting any tissue but peritoneum to come into apposition, all raw infected tissue being covered with well wrung-out iodoform gauze left in position for five or more days.

When the gauze is removed after the Kraske operation, the "doglick" principle is employed—frequent dressing and irrigation, Sitz baths, etc.

I. W. BACH, M.D.

Hays, G. L.: Volvulus of the Sigmoid. *Ann Surg.*, 1922, lxxv, 724.

From 5 to 15 per cent of the cases of acute intestinal obstruction are due to volvulus of the sigmoid. In 110 cases of acute obstruction of the intestines operated upon by Hays, there were five cases of sigmoid volvulus. These are reported in this paper.

The sigmoid presenting in the incision was usually dark and thick and from 6 to 10 in. in diameter at the widest point, filling most of the left side or even all of the abdomen. The volvulus varied from one to two and a half twists. Usually the twists were from right to left.

The sigmoid was resected by the angiotribe for-

ceps and cautery method. If possible, a few inches were left attached to the rectum and descending colon. When conditions permitted, a lateral anastomosis was done. Otherwise the Murphy button was used.

Three of the patients recovered without particular incident and were discharged cured. One died, and in one case an obstruction developed on the fourth day, necessitating the formation of an artificial anus. This patient also developed a fecal fistula which has never entirely closed.

The primary cause of volvulus is a probably congenital enlargement of the sigmoid. Next in importance are constipation, adhesions, operations, and tumor plus inflammation. The condition usually occurs after the fortieth year of age and is four times as common in males as in females. It probably begins with fermentation and the formation of gas in the dilated sigmoid leading to the formation of kinks at the junction of the descending colon, sigmoid, and rectosigmoid.

In the author's cases the diagnosis was based on a history of constipation, pain beginning on the left side, low down and extending upward, and a feeling of fullness on the left side. Pain low in the back was present in two cases. Local tenderness on the left side is usually present. The abdomen is distended, and strong peristalsis is visible. A tense, smooth tumor may be made out in the iliac fossa. As a late event, vomiting occurs.

Enemata should be tried with the patient in the knee-chest position. If these fail, operation should be performed without delay. The author recommends resection of the sigmoid.

O. S. PROCTOR, M.D.

Werthelmer, E.: Two Rare Forms of Carcinoma of the Sigmoid Colon and the Rectum (Zwei seltene Formen von Carcinom des Colon sigmoideum und Intestinum recti). *Med. Klin.*, 1922, xviii, 435.

The autopsy in the first case, that of a man 61 years old, showed: (1) a polypoid carcinoma of the sigmoid flexure as large as a bean and with a short pedicle; (2) an infiltrating secondary carcinoma the size of a hazelnut in the mesosigmoid; (3) multiple metastases in the liver; (4) numerous metastases in the vertebral bodies and both suprarenals; and (5) general icterus. Histologically, the growth was a malignant embryonic epithelial tumor, consisting chiefly of small round cells with an alveolar structure. The tumor in the flexure had caused no clinical symptoms but there was enlargement of the liver. There was a striking disproportion between the size of the primary tumor and the size and number of the metastases.

In the second case, that of a boy 15 years old, autopsy revealed: (1) a carcinoma of the lower rectum spreading to the surrounding tissues with a crater-like ulcer; (2) a secondary carcinoma of the regional lymph nodes of the mesorectum and the para-aortic lymph nodes; (3) carcinomatous peritonitis in the rectovesical space; and (4) secondary carci-

noma of the liver and the periportal lymph nodes. Histologically, the tumor proved to be a malignant epithelial growth consisting of medium and large epithelial cells. In many areas it showed mucous degeneration. According to the history, the onset of the disease occurred two months before death with pain in the pelvis and frequent evacuation of the bowels, but no intestinal stenosis. Borr (Z).

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Fullerton, A.: A Modification of the Operation of Cholecystenterostomy. *Brit. M. J.*, 1922, i, 995.

While the gall-bladder is removed for a variety of causes there are certain conditions in which its retention may be of importance in facilitating drainage of the common duct when the common duct is partially or completely obstructed. The most frequent cause of this condition is chronic pancreatitis.

To relieve the obstruction the gall-bladder has been anastomosed to the duodenum, stomach, or colon. The objections raised to this procedure are that the contents of the gall-bladder are infected; gall-stones may form and if removed may recur; and the contents of stomach, duodenum, or colon may be regurgitated into the gall-bladder.

In a case reported in this article in which the gall-bladder was distended with stones and there was a severe chronic pancreatitis with jaundice, the gall-bladder was opened, the stones were removed from the gall-bladder and cystic and common ducts, the main portion of the gall-bladder was removed, the stump was anastomosed to the anterior surface of the first portion of the duodenum, and the abdomen was closed without drainage. Healing occurred by first intention.

I. E. BISHKOW, M.D.

Hartmann, H., and Petit-Dutaillis, D.: The End-Results of Cholecystectomy Based on 100 Cases (Les suites éloignées de la cholecystectomie d'après 100 opérés revus). *Bull. Acad. de méd., Par.*, 1922, lxxvii, 481.

In the cases considered only the gall-bladder was operated upon; cases in which a cholecystectomy was done as a complement to a common duct operation are excluded. The 100 cases reviewed have been followed for periods varying from one to twenty years. Eighty were cases of calculous cholecystitis and twenty were cases of cholecystitis without calculi. In nine cases some other surgical procedure, such as an operation for hydatid cyst, hepatic tumor, etc., was done at the same time.

Thirty-four patients followed for one to twenty years have enjoyed perfect health continuously. Eight others who were relieved of their liver symptoms have died of some other disease since the operation. Twelve had digestive disturbances due to other causes after the operation but these ultimately disappeared.

Therefore fifty-four of the hundred cases showed that the cholecystectomy gave excellent immediate

results. Only seven of these patients have been under observation for less than two years after the operation.

Thirty-four patients, while well and expressing themselves as satisfied with the outcome, have had some slight pain or digestive disturbances.

The digestive disturbances are principally intestinal and of a diarrhetic character. In a very few cases gastric disturbances persist. As a rule, however, such conditions tend to disappear in time.

The attacks of pain complained of by some of the patients are associated with visceral ptosis.

In certain cases the postoperative results were less satisfactory. In four there were crises of hepatic colic and in four others disturbances due to adhesions between the duodenum or the hepatic flexure of the colon and the lower surface of the liver. In three there were severe gastric disturbances due to abnormal fixation and deformity of the upper angle of the duodenum which were evident on roentgenoscopy. Similarly, in cases of intestinal disturbances an abnormal fixation of the right angle of the colon may be found.

The minor disturbances arose particularly when the gall bladder contained multiple calculi. In such cases their incidence was 47.5 per cent while in cases of non-calculous cholecystitis it was only 25 per cent.

Blood disturbances, cholesterinemia, urobilinuria, etc. are found in cases incompletely cured by operation, but are always absent in completely cured cases.

It appears that 92 per cent of the cases operated upon are relieved of all complications either immediately or after suitable medical treatment. Such results ought to lead to an extension of the indications for cholecystectomy.

The authors emphasize the importance of exploring the bile passages during cholecystectomy. They call attention also to the frequent coincidence of disease of the appendix and gall-bladder. Such conditions are associated in 15 per cent of the cases. Cholecystectomy should be followed by suitable medical treatment.

W. A. BRENNAN.

Farnam, L. W.: Pancreatitis Following Mumps: Report of a Case with Operation. *Am J M. Sc.*, 1922, *class*, 839.

The author reports a case of pancreatitis following mumps in which objective evidence of the disease was seen at operation. Pancreatitis as a complication of mumps is not mentioned in modern textbooks but the similarity in the structure of the pancreas and the parotid glands and their concomitant inflammation were noted by older writers. An analysis of 110 cases of pancreatitis complicating mumps which are reported in the literature showed that it occurred more often in boys and young men than in other persons and that it usually followed but might precede the parotitis. The clinical picture is characterized by intense epigastric pain, often by vomiting, and occasionally by diarrhea or constipation and a slight rise in the temperature. A

mass may sometimes be felt in the epigastrium. The course is usually short.

The case reported was that of a 23-year-old Italian man who developed mumps two weeks before his entrance into the hospital. On the fifth day after its onset there was fairly sharp epigastric pain which was worse at night and not relieved by cathartics. Shortly afterward the temperature rose, but two days before the patient's admission to the hospital he was able to get up and travel on the train. At the time of his admission he stated that he was very sick and complained of pain and swelling in the abdomen.

Physical examination revealed a painless swelling in the parotid region and a scab on the forehead. The latter, the patient said, was due to a boil which had been opened by his physician a few days before. The patient's color was sallow and he kept his knees and thighs flexed. The abdomen was distended and there was marked fullness in the epigastrium. Tympany was found from the xiphoid to 10 cm. above the umbilicus. Below this there was a transverse strip across the abdomen, about 6 cm. wide, which merged into dullness in the flanks where tenderness was most marked in the middle and the right side, but not on the left. Muscle spasm and rigidity were noted above the umbilicus. On the first day the temperature was between 100 and 101 degrees F. The urine was negative. The leucocyte count was 17,800 with 80 per cent polymorphonuclears.

A tentative diagnosis of pancreatitis was made. When the abdomen was opened in the midline in the epigastrium there was a gush of thin, purulent fluid about the consistency and color of tomato soup, which was free in the peritoneal cavity. Six liters of this fluid were aspirated. The omentum appeared greatly inflamed but there was no fat necrosis. All of the organs in the abdomen were normal except the pancreas. When the pancreas was exposed by turning up the transverse colon and omentum and slitting the mesocolon, its capsule was found injected, very red, and very tense. It was about three times its normal size. Under the capsule were three small pale spots from $\frac{1}{2}$ to $1\frac{1}{4}$ cm. in diameter, which were believed to be fat necroses in the parenchyma. When one of these was opened no pus was obtained. Drains were placed to the pancreas and the flanks, and the abdomen was closed.

Subsequently the patient developed bronchopneumonia and a pelvic abscess. The latter was drained four weeks after the original operation. Slow improvement then followed and the patient ultimately left the hospital in good condition.

The peritoneal exudate showed streptococcus viridans. No trypsin was found.

H. W. FINK, M.D.

Albo, M.: Hydatid Cysts of the Pancreas. *Surg., Gynec. & Obst.*, 1922, *XXIV*, 719.

Albo reports a case of his own and cites others from the literature.

Hydatid cysts occur in the liver in 42 per cent of cases, but are found in the pancreas in only 0.12 per cent. These statistics were collected from the literature.

In the author's opinion the infection is spread by dogs and the ova may be ingested in vegetables or water. He believes that the pancreas becomes infected through the digestive tract, the organisms being brought to it by the blood stream.

The pancreatic cysts develop in the direction of least resistance, and may project into the lesser omentum, below the transverse mesocolon, or into the gastrocolic ligament. Often there are adhesions to the stomach, colon, and liver. Cysts developing along the cervico-corporeal portion of the pancreas usually have one of three points of prominence: (1) across the lesser omentum; (2) across the gastrocolic ligament, (3) across the transverse mesocolon. Cysts developing in the tail of the pancreas usually force the stomach, and sometimes the transverse colon, forward, and often appear at first to be below the kidney. The cyst continues growing until, in most cases, evident tumefaction is produced. In other cases the phenomena of canalicular compression play a more important part. Suppuration may take place. Spontaneous rupture has not been observed.

Hydatid cysts of the pancreas may be divided into three groups according to the pathological anatomy, as follows:

1. Those which develop in a latent or almost latent manner, so that they produce a syndrome of palpable or appreciable tumor.
2. Those which develop rapidly, causing symptoms resembling those of carcinoma of the bile ducts or the head of the pancreas.
3. Those that cause symptoms resembling those of retroperitoneal tumors.

In the cases developing in a latent manner and in which there is a palpable tumor the symptoms are usually the same as those of blood cysts of the pancreas. There may be light pain in the epigastrium, oppression in the epigastrium, nausea, vomiting, and a viscid or greasy diarrhoea. Cysts of the head of the pancreas simulating a cancer of the bile duct or of the head of the pancreas cause the following signs and symptoms: (1) general emaciation; (2) a bronzing of the skin; (3) icterus, which is usually persistent and progressive and associated with dilation of the gall-bladder; (4) pain in the pancreatic area; (5) aversion to fats and oils; (6) pain radiating to the back and the left lumbar region; and (7) a tumefaction, which is not always palpable even in cachectic subjects. Cysts which

develop as retroperitoneal tumors are usually symptomless but in some cases cause pain and a marked tumefaction.

It is easily determined whether an abdominal tumor is parietal or intra-abdominal. Intra-peritoneal tumors usually displace the intestinal loops coming in contact with the abdominal wall, while retroperitoneal tumors are usually covered by loops of intestine, the stomach, or the colon, which cause resonance in front of them. A tumor which has developed from the mesentery usually has a median location, is immobile laterally, and is covered in front by an intestinal loop. A tumor arising from the kidney is lateral, covered by the colon, and immobile laterally, and causes increased lumbar dullness. A tumor developing from the pancreas is median unless it is located in the tail, and is almost, but not entirely, immobile.

A résumé of the cases reported to date, with the exception of those of Chutro, shows that the condition has never been diagnosed before operation or autopsy. The symptoms cited by Chutro are not peculiar to this affection, being common to all tumors of the head of the pancreas. The diagnosis is arrived at by exclusion. The X-ray is an important aid in the diagnosis. Pneumoperitoneum often permits identification of the pancreas.

No satisfactory antiparasitic drug is known. In operating, the incision should be made so that it will give the easiest delivery of the tumor. The tumor is sometimes difficult to recognize. As a rule its extirpation is not advisable. An evacuating puncture with an appropriate trocar should be followed by the injection of parasiticide liquid. Albo employs a solution of 2 per cent pure formaldehyde in water, or injects pure formalin in a quantity proportionate to the volume of the cyst. After the proligerous membrane and daughter cysts have been removed, the cavity should be dried with gauze soaked in ether containing some antiseptic substance.

Albo believes it is best to close the cysts if their contents are clear unless they are very large or it is necessary to resect the pericystic tissue. He uses 1 c. cm. of 1:1,000 adrenalin solution during operation to prevent hydatid intoxication, and also during the following days if tachycardia, dyspnoea, and oliguria persist. If marsupialization of the pericystic pouch is done, drainage by aspiration is facilitated. As a complementary operation, cholecystostomy may be indicated when icterus is very pronounced and there are indications for rapid drainage of bile. In cases of duodenal compression gastro-enterostomy may be necessary.

O. S. PROCTOR, M.D.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS,
MUSCLES, TENDONS, ETC

Baccarini, L.: A Case of Bone Cyst (Un caso di cisti ossea). *Atta del dottor*, 1922, v, 233.

The pathology of juxta-epiphyseal and diaphyseal bone cavities, especially in very young persons, is still little known. In the author's opinion the term "bone cyst" is improperly applied to such cavities.

Numerous bone cavities of different origin are termed bone cysts. Petrá has recently divided these into two main classes: (1) true cysts, and (2) pseudocysts. The first include only those cavity formations in which the surrounding wall forms the essential part of the cyst and the cyst is not dependent on the surrounding tissues. The second are all cavity formations in which it is impossible to distinguish a wall proper to the cyst.

From the point of view of pathogenesis there are many types of osseous cavities: parasitic cysts, congenital cysts, cystic cavities due to the dissolution of tumors, cysts due to liquefaction of bone tissue, and cavity formations occurring especially in the long bones, which lack an epithelial or endothelial lining and the origin of which is disputed. It is of this last class that Baccarini writes. The various theories regarding their origin are discussed in detail.

In a case observed by Baccarini, that of a boy of 6 years, a cystic condition of the upper extremity of the radius was found at operation. Histologic examination showed destruction of osseous tissue by a process of resorption and the substitution of the characteristic osteoclasts; regeneration of bony tissue was demonstrated by the presence of numerous osteoblasts, a diffuse bloody infiltration, and the formation of blood lacunae. None of the etiological theories as far advanced explains this case.

Baccarini finds that in the great majority of cases of this kind reported in the literature little attention was paid to a factor which was frequently noted in the histologic examinations, viz., the hemorrhagic infiltration of the osseous tissue and the formation of blood lacunae. The morbid process which leads to the cavernous formation is nearly always localized in the juxta-epiphyseal regions of the long bones and is essentially characteristic of the first decade of life, an epoch in which these regions are most active since it is here that the lengthening of the bones is particularly localized. Most of the ilia, diaphyseal and epiphyseal regions are formed of spongy tissue in which the vascular network is conspicuous as compared with the rest of the diaphysis. On account of the activity of the growth function, metabolic exchange is more active.

The arterial vessels have the appearance of terminal arteries. It is not illogical therefore to assume that in such a structure an anatomical lesion would

involve the vessels so as to favor the formation of a pseudocystic cavity. Small, continuously forming hemorrhages slowly separate these tissues and the latter fall into the medullary cavity and become absorbed, leaving gaps behind them which ultimately become blood lacunae. This, Baccarini believes, is the manner in which these bone cavities are formed.

W. A. BRENNAN.

Moon, V. H.: Osteitis Fibrosa Cystica: A Pathologic Consideration. *J. Indiana M. Ass.*, 1922, xv, 185.

The author has seen three cases of osteitis fibrosa cystica within a year. This disease, which is peculiar to childhood and youth, consists of a proliferation of fibrous tissue in the medullary cavity of long bones with absorption of the bony substance resulting in rarefaction, moderate enlargement, and weakening. It is insidious in onset, usually painless, and associated with few early symptoms.

Microscopic examination shows the marrow substance to be displaced by a growth of fibrous tissue extending into the canals and lacunae of the compact bone and separating the lamellae of the hard bony shell. The periosteum is usually intact. Giant cells are occasionally seen. Cyst formation is frequent. The cyst fluid, which consists of blood cells and pigment, is not under pressure.

The etiology is obscure. Many regard the disease as a reaction to trauma. Various metabolic and glandular disturbances have been suggested as causes.

Surgical intervention is beneficial when the involvement is not too extensive. Incision and curettage of the involved medulla in suitable cases, supplemented by bone grafting, is a good procedure.

As no metastasis takes place, surgery limits the extension of the disease. The condition is not neoplastic. Benign neoplasms usually have a capsule and a sharply defined margin of growth. These features are absent in osteitis fibrosa as the lesion has an indefinite margin and the growth of fibrous tissue is infiltrative.

J. R. MERRILL, M.D.

Gaugele, K.: The Hopping Knee and the Snapping Knee (Das hüpfende Knie und das schnappende Knie). *Zschr. f. orthop. Chir.*, 1921, xii, 206.

In the last few years Gaugele has observed a number of cases of disturbances in the knee to which he applies the terms "hopping knee" and "snapping knee." Snapping knee has been described a few times in the literature as "springing and elastic knee." The condition which Gaugele calls hopping knee has also been reported in the literature.

These conditions are exceedingly rare. Three cases are reported.

Case 1 was that of an 11-months-old girl. When the child cried, coughed, or was otherwise restless, the tibia moved about on the femur in such a manner that

its head became displaced laterally and anteriorly, that is, it was distinctly subluxated. The return to the normal position took place with an audible snap backward. The patella did not change its position. The noise was sometimes very loud, a dull thud. The more restless the child became, the quicker the noises followed one another, until there were two or three a second. The X-ray picture was negative.

Case 2 was that of a 13-year-old girl. In flexion and extension of the knee joint at about 10 to 20 degrees short of complete extension there occurred a noise loud enough to be heard at some distance. The lateral portion of the femur was thickened.

Case 3 was that of a 63-year-old woman who had had trouble with her left knee for years. For some time there had been a sudden snap accompanied by a loud noise at 40 to 60 degrees of flexion. The X-ray showed deposits on the head of the tibia, over which the tendon slipped during movement, causing the noise.

In these three cases the snapping knees had entirely different anatomical bases. In Gaugele's opinion the cause in Case 1 was great relaxation of the ligamentous apparatus, particularly a lengthening of the crucial ligaments. In Case 2 the condition was of traumatic origin. Treatment by the application of a plaster-of-Paris dressing resulted in almost complete cure.

Gaugele holds the terms "springing knee" and "elastic knee" to be erroneous. Two forms are to be distinguished, the articular and the peri-articular. The condition which Gaugele calls "hopping knee" is a variety of the articular form of snapping knee. Aside from hydro-atonic and medico-mechanical treatment, there must be, in the peri-articular form, surgical removal of the deposits and exostoses which hinder the movement of the tendons.

WOHLAUER (Z).

Kuettner, H.: Tennis Leg (Das Tennisbein). *Deutsche med. Wochenschr.*, 1922, xlviii, 412.

The term "tennis leg" is applied to the subcutaneous rupture of the triceps suræ which is seen with comparative frequency since the game of tennis has become popular in Germany. As a rule the condition occurs in persons past middle age because of the decrease in the elasticity of their tendons and muscles. Professional players and persons used to sports are comparatively exempt.

The first symptoms are extremely characteristic. During play, a sudden, severe pain is felt in the calf, and movement of the leg becomes impossible. In some cases fainting may occur. The rupture affects either the belly of the muscle or the insertion of the Achilles tendon. It is transverse and distinctly palpable. The associated extravasation of blood may cause considerable swelling.

Among five cases of tennis leg observed by the author there was one in which the condition was bilateral. The injury is caused by hyperextension of the muscle following rapidly on its contraction to

the maximum degree. It may occur during standing on the toes as well as during running.

In the treatment the first consideration is immediate, careful resumption of walking. At the end of one week the patient is usually able to walk normally. Fixation bandages, massage, and confinement to bed are distinctly contra-indicated. Immediately after the injury the limb should be elevated in order to arrest the hæmorrhage. In more severe cases adhesive plaster strapping from just above the ankle joint to the middle of the calf may be applied, but even in such cases it is essential that immediate efforts be made to resume walking.

PEIFER (Z).

Baensch, W.: The Etiology of Koehler's Disease: A Change in the Second Metatarsophalangeal Joint (Ueber die Aetiologie der Koehlerschen Krankheit: Veraenderung am 2. Metatarsophalangealgelenk). *Deutsche med. Wochenschr.*, 1922, xlviii, 318.

Baensch describes briefly the typical changes in the second metatarsophalangeal joint as they were first reported by Koehler. He then records the case of a 17-year-old girl, a farm worker, who gave a history of pain and swelling in the left second metatarsophalangeal joint occurring at intervals for a year. Injury was denied, but the patient admitted that she was almost always barefooted, wearing stockings and wooden shoes only in the winter. The X-ray showed the typical picture of Koehler's disease. Lues, tuberculosis, and late rickets were excluded.

Baensch assumes as the cause a sinking in of the anterior transverse arch of the foot, by which a great part of the weight was thrown on the second metatarsus because of a mesial deviation of the great toe. If a person so affected carries a heavy load for a short time, the second metatarsus will be fractured, and if he carries a lighter load for a long period, the second metatarsus will be bent down, that is, its head will be gradually inclined dorsally. As the result of the chronic irritation, an arthritis deformans develops, which in advanced cases presents the X-ray findings described by Koehler. The thickening of the shaft of the second metatarsus is a functional accommodation.

In the treatment the anterior transverse arch must first be raised. If the local symptoms are serious, excision of the joint may be indicated.

In conclusion Baensch urges that a suitable name be given this disease picture in order to prevent its confusion with other "Koehler diseases."

LOEFFLER (Z).

FRACTURES AND DISLOCATIONS

Lambotte, A.: Encircling Fractures with Metal Strips (Contribution au cerclage des os au moyen de rubans métalliques). *Presse méd.*, Pat., 1922, xxx, 530.

In Lambotte's opinion, the methods of encircling fractures with metallic ribbon devised by Parham

and Patti do not give sufficient solidity and the instrumentation is inconvenient. The weak point in the buckling of the metallic ring which, in the Parkman technique, is effected by twisting the ribbon. The breaking strength here is insufficient for large bones.

Lambotte uses two sizes of instruments and steel strips 4 mm. wide, $2/5$ mm. thick, and 21 cm. long. Each ribbon has at its end a separate noose of short steel $1/10$ mm. thick. The strip is passed through the opening of the noose and turned back for 1 cm., the opening being large enough to take two thick nooses of the ribbon. Lambotte's method of tightening the encircling ribbon is shown in the accompanying figure.



To prevent weakness at the buckle Lambotte has constructed a small clasp of soft steel which slides along the ribbon and has two projecting wings. When the end of the strip is passed through the noose, tightened, and turned back, it is placed over the sliding clasp and the side wings of the latter are forced down to hold it securely. W. A. BRENNAN.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Kappte, M.: Arthrodesis in Tuberculosis of the Joints by Peri-Articular Implantation of a Wedge of Bone (Die Arthrodesen durch peri-artikuläre Knochenkegel-Einpfanzung bei Gelenktuberkulose). *Deutsche Zeits. f. Chir.*, 1922, *vol.* 116.

This is a report of the results of peri-articular wedge arthrodesis in fourteen cases of tuberculous arthritis. There was one death from miliary tuberculosis present before the operation, and one failure because of breaking of the wedge. In the remaining cases the pains were soon stopped, and at the end of a few months the patient was able to walk without a plaster or Paris dressing. Fracture of the implanted bony wedge, nevertheless, occurred twice.

The technique of the operation is described. If the hip joint is in poor position, a subtrochanteric osteotomy is also necessary. Contra-indications to the operation are a poor general condition, miliary and other extensive forms of tuberculosis, and

fatal and cold abscesses in the field of operation. In children, disturbances of growth due to the implantation of the wedge must be considered. In one case of tuberculosis of the shoulder joint the implanted wedge broke after five and a half months.

LOEFFLER (2)

Davis, B. B.: Total Removal of the Scapula for Primary Giant-Cell Sarcoma. *Surg., Gynec. & Obst.*, 1922, *XXXV*, 756.

The author reports the case of a woman, aged 27 years, who presented an enlargement of the left shoulder blade and gave the following history:

Two years previously, following a fall, she experienced a sharp pain in the left shoulder. This soon disappeared but exercise often caused a peculiar feeling of tiredness in the same region. One year later she first noticed an oval-shaped swelling over the scapula which occasionally was painful. A fracture of the scapula was diagnosed by her physician but no treatment was given. Some time later she consulted the author, the shoulder was examined with the X-ray, and a diagnosis of sarcoma of the scapula was made.

Physical examination showed that the body of the scapula was markedly enlarged and rounded. There was very little limitation of motion in the shoulder joint. The body of the scapula was free.

At operation an incision was made from the inner border of the axilla outward and the coracoid process was freed. The subscapular artery and vein were ligated doubly and cut. The patient was then turned and an incision made from the upper angle of the scapula along the vertebral border. The muscular attachments were severed and the body of the scapula freed from the chest wall and removed. The wound was closed with drainage. The author calls attention to the advisability of ligating the subscapular vessels to control hemorrhage.

Six days after the operation the patient was able to use the left arm to brush her hair. She is now able to do all of her housework and states that this arm appears to be as strong as the right.

The tumor was a rounded mass involving almost all of the axillary border below the glenoid fossa. It was enclosed by a capsule except at the inferior angle where some reddish granulation tissue was present. Microscopic examination showed it to be a characteristic giant-cell sarcoma.

The author believes that this is the first case of unquestioned giant-cell sarcoma of the scapula to be reported. Bloodgood, Coley, and Platou take the position that these giant-celled tumors are always permanently benign and that they may be conservatively treated by curettage. Others are of the opinion that they may break down and undergo changes. It is difficult to draw a line of separation between the giant-cell tumor and the sarcoma with a superabundance of giant-cells which does not form metastases. Therefore there is danger of carrying conservative treatment too far.

WILLIAM J. PICKETT, M.D.

SURGERY OF THE SPINAL COLUMN AND CORD

Von Finck, J.: A Contribution to the Pathologic Anatomy and Clinical Aspects of Spina Bifida Occulta Based upon Autopsy Findings in the Newborn (*Ein Beitrag zur pathologischen Anatomie und Klinik der Spina bifida occulta auf Grund von Sektionsbefunden an Leichen Neugeborener*). *Ztschr. f. orthop. Chir.*, 1921, xlii, 61.

In research into the etiology of habitual scoliosis the author found the symptoms of spina bifida occulta which he had already minutely described in 1920 and proved to be partly dependent on the age of the patient. As the fissures ossify at the latest with the advent of puberty, often earlier, it is seldom that a defect remains after this time. Spina bifida occulta occurs much more frequently than is generally believed; occasionally it is without clinical symptoms, but as a rule it is associated with some malformation of the lower extremities such as club-foot and habitual scoliosis.

Of the patients examined by the author in the clinic, 35 per cent showed signs of this condition. Other surgeons have found it of frequent occurrence and have called attention to the diversity of the

signs, particularly the roentgen findings which vary according to the age of the patient, the fovea coccygea, the hypertrichosis, and the pain caused by pressure on the defective vertebra.

Von Finck tabulates the signs he has found. On the basis of the autopsy findings in the cases of forty-six new-born infants he divides the cases into two groups. In the first group the most important condition is absence of the spinal process or its rudimentary development. In the second it is absence of the arch. The higher the defect and the more complete it is, the more severe the disease picture.

Particularly grave are defects occurring in the arches of the upper vertebrae, as in such cases a considerable fatty growth takes place in the vertebral canal. In the clinical examination it is therefore necessary to determine the presence or absence, the shape, and the size of the spinal processes, and the height of the disturbance and its extension. The prognosis is particularly unfavorable in cases in which a cicatrix is found in the center of the hairy field.

SIMON (Z).

SURGERY OF THE NERVOUS SYSTEM

Feiss, H. O.: The Direct Stimulation of Peripheral Nerves; Rules for Procedure in the Operating Room. *Surg., Gynec. & Obst.*, 1922, xxxiv, 810.

Rule 1. After careful dissection the nerve should be freed for a sufficient distance, depending upon the local condition. It should not be stripped clean any further than necessary as too extensive stripping will impair the circulation to its sheath.

Rule 2. In the isolation of the nerve from scar or adherent tissues, responses may be evoked by the mechanical stimulation. Observation of these responses is of importance because they indicate the functional state of the nerve and the muscles it supplies.

Rule 3. Before faradic stimulation, the nerve previously freed should be lifted up on a glass hook to isolate it from all other tissues. If the nerve is found to be divided, the segment to be stimulated should be lifted up by a suture inserted through the end of it.

Rule 4. The nerve should be kept moist with salt solution during stimulation. To prevent spread of the current care must be taken not to drop too much solution in the wound.

Rule 5. In faradic stimulation bipolar electrodes are more practical than unipolar electrodes. The electrodes should be made of metal in order that they may be easily sterilized. The points should be of platinum and so constructed that the distance between them can be changed with ease. It is

expedient to have two platinum wires free for a distance of about 1.5 cm. so that adjustment can be made by bending them.

Rule 6. It is best to begin with a current of moderate strength. Because of spread, a strong current is dangerous and should be used only when a weak or moderate current has been tried previously. The current should be tested by applying the electrode points to the tip of the tongue. A current which is barely perceptible should be employed first. The relationship of the primary to the secondary coil should be noted and maintained for the beginning of the operation. In some nerves, such as the sciatic, and in cases of abundant scar a stronger current will be required to make sure that the inner central fibers are carrying it.

Rule 7. Stimulate the nerve on all sides. In cases of neuroma the nerve should be stimulated above and below it. To test efferent fibers stimulate the peripheral portion; to test afferent fibers stimulate the central segments.

Rule 8. If efferent response is positive, an attempt should be made to separate the nerve into its constituent bundles and to test each bundle individually. In this manner it may be determined which part of the nerve has escaped injury and which has regenerated. The neuroma should be examined in the same way.

Rule 9. Note the precise nature of the response. For example, in radial nerve injuries stimulate

above the elbow, note if the wrist, thumb, and fingers extend, and the amount and strength of the movement.

Rule 10. Start with slow interruptions as these facilitate study of the effects of excitation and prevent fatigue. This rule is subject to modification depending on the nerve stimulated.

Rule 11. If it is necessary to excise a neuroma it is of interest to observe the extremity during the excision as this is nothing more than mechanical stimulation. The neuroma should first be cut from the central segment and then from the peripheral segment, since responses may be obtained from the peripheral segment which cannot be obtained from the central segment.

Observations made in the operating room are of no value unless a careful examination is made a few days previously. The findings of direct stimulation and those of stimulation through the skin should be compared. If a discrepancy is noted the direct stimulation data are the more valuable.

S. J. HARRIS, M.D.

Sommer, R.: The Present Status of the Neurinoma Problem. (*Der heutige Stand der Neurinomfrage.*) *Beitr. z. klin. Chir.*, 1922, CCXV, 694.

After reporting two of his own cases of Verocay's neurinoma (neurinoma of the brachial plexus situated in the ulnar nerve and neurinoma of the cerebello-pontine angle) and after giving a tabulated compilation of thirty-seven unquestionable cases of neurinoma found in the literature, Sommer reviews the various theories regarding this tumor and discusses its differentiation from von Recklinghausen's neurofibromatosis.

Von Recklinghausen designated pure connective tissue tumors of the nerve-fiber fasciculi as neurofibromatosis and regarded the nervous system as only the carrier of such "fibromata." Knauss and Askanius believed that the nervous system is involved in the formation of the tumors, and in this they were upheld by Kreidel and Benecke. Durante regarded the von Recklinghausen tumor as a "forme fruste et incomplète" of a true segmentary neuroma in which the connective-tissue change was most prominent. Verocay applied the term "neurinoma" to tumors originating in the sheath of Schwann of the nerve fibers and composed partly of glia tissue.

A neurinoma is a benign tumor which is usually solitary and may arise wherever there are nerve fibers, motor, sensory, or sympathetic. Its most common sites are the nerve roots as they emerge from the spinal cord and the cerebellopontine angle. The tumor is firm and can be easily enucleated. Microscopically it consists of two tissues sharply differentiated from each other. In the peripheral portion there is a characteristic band-like marking which is produced entirely by the irregular distribution of nuclei. The edges of the band are formed by layers of nuclei lying close together with their longitudinal axis vertical to the

longitudinal axis of the band. The rows of nuclei lying opposite one another are connected by homogeneous threads of protoplasm intersecting the axis of the band vertically. According to Verocay, these nuclear bands are formed by the proliferation of the Schwann nuclei.

The glassy transparent center consists of a delicate homogeneous fiber structure, in the meshes of which round to ovoid nuclei lie distributed at distances the breadth of four to five nuclei (glia-like tissue). In certain spots liquefaction sets in. Neither kind of tissue has anything in common with connective tissue, as its staining qualities show. The tumor contains also connective tissue, nerves, and vessels.

In the so-called mixed forms, connective tissue is an important element, but is always only a supporting substance. In a scirrhous tumor, for example, it is not the connective tissue, the chief constituent, but the epithelial tissue, which determines the character of the growth. The vessels usually show hyaline degeneration. In the tumor itself neither ganglion cells nor nerve fibers are demonstrable.

Solitary neurinomata reveal this typical structure, but as they multiply a gradual displacement of the connective tissue occurs. The neurinoma is therefore a product of glia and the sheath of Schwann, whereas the von Recklinghausen neurofibroma is a tumor-like proliferation of the perineurium and the endoneurium. The latter usually shows an evolution quite different from that of the neurinoma, appearing at numerous points in the peripheral nerves while the neurinoma is usually single and centrally located. The neurinoma is a disturbance in development which appears at an early embryonic period, a time when the neuroblasts and the spongioblasts are not yet differentiated. JASTROW, Z.

Micotti, R.: Sacral Chordoma. (*Sul chordoma del sacro.*) *Policlin.*, Rome, 1922, XXIX, sez. chir., 275.

Next to the base of the brain the sacral region is the most frequent site of chordoma.

The first case of sacral chordoma was reported by Feldmann in 1910.

Micotti reports the case of a man aged 53 years who had a fusiform tumor extending from the left sacral margin to the great trochanter. This growth was extirpated with much difficulty because of the presence of numerous ischiatic and sacral adhesions. The patient died soon afterward.

According to Wegelin the malignancy of chordomata is evidenced by their destruction of the surrounding tissues, the infiltration of neoplastic elements, the presence of blastomatous cells in the interior of the vessels, the large numbers of small, polyhedral cells without vacuoli which form peripheral masses, the rich content of mucoid substance, and the abundant accumulation of glycogen.

Although metastases were not apparent in the clinical examination in the author's case, it cannot be stated that they were absent. Micotti believes

that none of the criteria mentioned by Wegelin is of absolute value in distinguishing between malignant and benign chordomata, and agrees with Pardi who stated that all chordomata should be considered malignant because they arise from embryonic rests.

The number of known cases of sacral chordoma is small. The growth occurs more frequently in males than in females and reaches its greatest incidence between the forty-fifth and fifty-fifth years of age. As a rule the diagnosis requires microscopic examination. In most cases rapid development of the tumor has followed an injury. The early symptoms are due to compression of the rectum and urethra, and are not different from those caused by other tumors from which the chordoma must be differentiated.

W. A. BRENNAN.

Wojciechowski, A.: The Sympathetic Nervous System and Surgery (*Sympathisches Nervensystem und Chirurgie*). *Gas. Lek.*, 1921, lvi, 148.

The author gives a general review of the disturbances and diseases of the sympathetic nervous system of surgical interest. The greater number of articles in the literature deal with neuralgias of specifically burning character (causalgia) following trauma. The pain is not limited exclusively to the anatomical distribution of the nerves, there being tension and redness (less frequently, pallor) of the skin, increased sweating, attacks of pain due to

psychic influences, and frequently trophic disturbances.

The therapeutic measures proposed include excision of the sympathetic vascular plexus (Leriche), nerve resection, injections of cocaine or alcohol into the nerves, and resection of the posterior roots. The results of such operations must be judged very critically; the procedure of Leriche deserves consideration.

Tinel's findings in six cases show that the genesis of the condition is not necessarily dependent on trauma alone. Excision of the sympathetic vascular plexus has been carried out with very good results in Raynaud's disease and for the relief of pain in gangrene following endarteritis obliterans and pain following freezing with badly healing ulcers. Excision of the sympathetic fibers of the arteries of the thyroid gland has led to reduction in the size of goiter.

Besides these operations on the peripheral sympathetic nerves, operations on the sympathetic ganglia are discussed. By excision of the superior cervical ganglia (Leriche) improvement was brought about in a case of progressive unilateral atrophy of the face, unilateral headache following herpes zoster was made to disappear, and inability to close the eye due to paralysis of the facial nerve was overcome. Jonnesco cured angina pectoris by excision of the two lower cervical ganglia and the upper thoracic ganglion on the left side. The relationship between angina pectoris and Raynaud's disease is pointed out.

JURASKI (Z).

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Davis, G. G.: Traumatic Orbitofacial Emphysema. *Surg., Gynec. & Obs.*, 1922, xxiv, 761.

Traumatic facial emphysema may occur following fracture of the nasal, lachrymal, ethmoid, or frontal bones or perforation of the dental canal and the roof of the antrum of highmore by a dental drill. External pneumatoceles may result from fracture of the frontal bone or from fracture or disease of bone in relation to the frontal or mastoid sinuses.

The author reports a case of orbitofacial emphysema due probably to fracture of the thin walls of the frontal sinus associated with an increase in the air pressure of the buccal and nasal cavity caused by blowing the nose. Following a blow on the sacroiliac region, the patient, a man aged 45 years, fell forward on the floor, striking his face. Bleeding from both nares was associated with contusion of the frontal region and swelling and discoloration of the bridge of the nose. When the patient blew his nose shortly after the injury considerable swelling suddenly developed in the forehead, the nose, both cheeks, and the eyes. On palpation there was a typical crackling sound and the air could be forced

from one area to another. Pressure caused pitting. The X-ray plates showed no well-defined fracture, but revealed semilunar-shaped air spaces in the upper portion of both orbits and rather large pneumatic areas in a thin-walled frontal sinus. The swelling gradually decreased and on the fourth day only a small area over the bridge of the nose crackled on pressure. An X-ray plate made eight days after the injury showed no semilunar-shaped air spaces in the orbits. Air in the tissues had disappeared also.

WALTER C. BURKET, M.D.

Miller, J., and Browne, F. J.: Extra-Genital Chorion-Epitheliomata of Congenital Origin. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 48.

The authors discuss at some length the embryology and pathology of extragenital chorion-epithelioma of congenital origin and report a new case.

Although such tumors are usually related to pregnancy, abortion, or hydatidiform mole, a number of cases have been reported in which such relationships could be positively excluded. The non-conceptual chorion-epitheliomata occur in both sexes but are more frequent in the male. A large percentage of such tumors develop in the testicle. The

ovary, the liver, and the mediastinum are situations in which they do not occur.

The majority of these tumors, both in the male and female, arise from, or bear a direction relationship to, the teratomatous germ growths.

The case reported was that of a man, 39 years of age, a patient at the Edinburgh Royal Infirmary. The conclusions drawn with regard to it are as follows:

1. A testicular tumor as the primary source of the growth could be excluded with certainty in this case.

2. The primary tumor was situated behind the liver and probably originated in an abnormally situated primitive germ cell.

3. The latter, without fertilization, had undergone development producing a teratoma which contained all three layers of the embryo plus trophoblast.

4. The stimulus for the division of the positive germ cell (gamete) was probably found in the abnormal (not ovarian or testicular) tissue by which the gamete was surrounded.

5. The cause of the malignant transformation of the teratomatous formation may be found in the little understood disturbance of balance of internal secretions occurring in adult life and especially in middle life.

HARVEY B. MATTHEWS, M.D.

BLOOD AND LYMPH VESSELS

Grégoire, R.: Asystole Due to Arteriovenous Aneurisms and Its Surgical Treatment. (*L'asystole provoquée par les anévrismes artérioveineux et son traitement chirurgical*). *Bull. et mémoires de l'Académie de Médecine*, 1933, 58, 111.

Grégoire reports two cases. The first was that of a man 34 years of age who received a gunshot wound in the upper part of the thorax in 1914. A year later effort dyspnea and heart murmur were noted. The heart was hypertrophied and hyposystolic. By tracing the course of the murmur a subclavian arteriovenous aneurism was discovered. Following operation on the aneurism the asystolic phenomena disappeared.

The second case was that of a man who was wounded by a shrapnel bullet in 1914 and developed an arteriovenous aneurism at the apex of Scarpa's triangle on the left side. For a year he had had symptoms of cardiac failure and was confined to bed, the asystole being complete and associated with cyanosis, edema of the lower limbs, enlargement of the liver, dyspnea, etc. After operation on the aneurism the asystole disappeared in twenty-four hours.

In Grégoire's opinion the fatigue of the heart and the asystole due to forced cardiac effort necessitated by an arteriovenous communication have not been given sufficient attention in the textbooks. He has been able to find in the literature the reports of only five cases in which asystole disappeared after surgical treatment of an aneurism.

The slowing of the heart has been considered by some surgeons as contra-indicating operation but Grégoire believes that intervention on the aneurism is the best method of causing the disappearance of the asystole. His conclusions are as follows:

Arteriovenous aneurism causes an increase in pressure above the aneurism and hypertrophy of the left side of the heart. Arterial dilatation results from this hyperpressure.

Hypopressure is present only below the aneurism.

The venous pressure generally increases when the heart becomes insufficient.

Excess of effort caused by the increase of vascular pressure brings on cardiac failure and asystole.

Even in apparently desperate cases operative treatment of the arteriovenous communication is the only method of curing the asystole.

W. A. BRENNAN.

Winslow, N.: Extracranial Aneurism of the Internal Carotid Artery. *Ann. Surg.*, 1932, 95, 183.

Of the carotid arteries the common carotid is most frequently the site of aneurism. According to Winslow, the interest in this affection lies not only in its rarity but also in the fact that it is apt to be mistaken for tonsillar abscess. In the differential diagnosis of lesions in this region consideration must be taken chiefly of aneurism of the extracranial portion of the internal carotid artery and abscess. Malignancy is rare.

The history is of inestimable value. Digital examination is always necessary. The symptoms are usually characteristic. A tumor pushes the tonsil inward toward the midline or across the pharyngeal cavity and presents as a circumscribed or somewhat diffuse, rounded, pulsatile swelling crowding into the fauces. Externally there may be no evidence of disease or there may be a fullness or a distinct tumor behind the angle of the jaw and in front of and below the ear. In the latter event pulsation is felt and on auscultation a souffle is heard over this area. With a finger inside the mouth and another on the neck, the mass is felt to be expansile. Both murmur and pulsation disappear when the common carotid is compressed against the vertebral column and re-appear immediately on release of the pressure. Arrest of the circulation causes a diminution in the size of the growth.

Complaint is often made of an annoying roaring and buzzing in the ear, persistent, severe, and unbearable hemicrania, vertigo, weakness, and other symptoms due to disturbance of the cerebral circulation. The swallowing of solids is sometimes impossible, and usually is accomplished with difficulty. Liquid food is frequently regurgitated. Dyspnea is a common complaint. If the hypoglossal, glossopharyngeal, or vagus nerve is involved, the organ it supplies is paralyzed, as indicated by deviation of the tongue on protrusion, interference with swallowing, or hoarseness. In doubtful cases a diagnosis may be made with the aid of the aspirating needle. A dry tap does not eliminate aneurism as the point

of the needle may be plugged by a clot, but the withdrawal of pure blood is positive proof of the presence of an aneurism. Tapping is not recommended, however, unless a prompt operation can be done if a rupture occurs in the path of the needle. Aneurism of the internal carotid rarely points in the neck.

A brief review of the development of the surgery of the carotid arteries is given. Winslow believes the operation of choice is occlusion of the internal carotid proximal to the sac. If this is impossible, ligation of the common carotid artery with ligation of the external carotid between its origin and first branch is indicated. If the external carotid is tied distal to a branch, the branch also must be occluded. After ligation the prognosis as regards operative recovery and permanent cure is fair.

The author gives a list of cases reported in the literature, a table of nineteen cases observed by American surgeons, thirteen of which were operated upon, and a full report of a recent case of his own.

E. C. ROBITSHEK, M.D.

La Roque, G. P.: A Wound of the Femoral Artery and Vein. *Ann. Surg.*, 1922, lxxv, 705.

This is the author's second case. The first patient, whose case was reported previously, is today well, after a lapse of two years. The case reported in this article was treated by ligation of the femoral artery and vein above and below the site of injury and complete excision of the injured segments, slightly more than an inch of each vessel. The result is perfect, there being no evidence of ischemia of the limb, no impairment of function of the lower extremity, and except for the absence of pulsation of the popliteal artery and vessels of the ankle and foot and the presence of a scar at the site of operation, no evidence that the limb had ever been injured or operated upon. The history of the case and the operation are given in full with illustrations.

E. C. ROBITSHEK, M.D.

Herff, E. P.: Elephantiasis Treated by the Kondoleon Operation. *Surg., Gynec. & Obst.*, 1922, xxiv, 758.

In elephantiasis it is advisable to try every means to reduce the size of the limb before attempting surgical treatment. The Kondoleon operation consists in establishing a connection between the superficial and the deep lymphatics by permanently breaking the fascial walls lying between the muscles and the subcutaneous tissues and removing wide wedges of skin, fat, and deep fascia from both sides of the affected limb. Skin incisions over the joints are avoided in order to prevent scars in these areas, the subcutaneous tissues here being removed by undermining the skin. The thick waxy fascia is not sutured. In order to prevent painful adhesions the muscle is not broken. The lymphatic material is drained.

It is better not to operate on both sides of the same limb at one operation. In the lower extremity

the outer side is operated upon first. After six weeks and after the discharging sinus has healed and the swelling has subsided, the inner side is operated upon. In this method there is less danger of injuring the saphenous vein. While drainage continues the limb is firmly bandaged, elevated, and dressed daily. It is not allowed to hang down and should not be used for at least one month after operation. The patient is warned that a complete cure is scarcely to be expected and that some support must be worn for the rest of his life. Light massage is given from time to time.

The author briefly reports three cases in which he performed Kondoleon's operation. He draws the following conclusions:

1. The Kondoleon operation is a commendable surgical procedure and the only one that gives any decided relief.

2. It is not a curative operation as the enlargement tends to recur, especially if the extremity is unsupported.

3. In most cases recurrence can be held in check much more readily than the original enlargement can be controlled.

4. The patient is rendered decidedly more comfortable and does not suffer from pain or ill effects following the operation.

WALTER C. BURKET, M.D.

SURGICAL DIAGNOSIS, PATHOLOGY, AND THERAPEUTICS

Vaughan, E. M.: Bullet Wounds: Their Interpretation. *J. Am. M. Ass.*, 1922, lxxviii, 1801.

Careful study of a bullet wound will usually reveal the course of the bullet and its final destination. A bullet fired at long range and striking the skin at right angles will leave a round wound with seared edges but without a brush burn.

If the missile strikes the skin at an acute angle to the presenting surface, the tissue is pushed until enough has been crowded up to permit its penetration, and as the bullet skids or slides on the skin before entering it will cause a brush burn on the side of the wound from which it came. The longer the brush burn the shallower the penetration of the bullet.

Until their force is expended, steel-jacketed and cupronickel lead-filled bullets travel straight ahead and are not deflected when they strike bone equally on all sides.

Contact wounds are surrounded by a ring of powder or a burn of the skin due to the exploding gases. Gas wounds are contact wounds, and are gaping, extensive, ragged-edged wounds into which the exploding gases have entered through the opening made by the bullet and undermined the tissues, scorching and tearing them apart. They usually occur where there are layers of soft tissues overlying bone, as in the scalp.

Revolvers in common use, 0.25, 0.32, 0.38, and 0.45 calibers, flash about 4, 5, 7 and 9 in. respec-

tively. The area of smudge is of a deeper color and smaller diameter the closer the gun is held, and gradually increases in diameter and decreases in density of color up to the point of the greatest flash of the gun.

H. A. McKISSEN, M.D.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Neuhof, H., and Ziegler, J. M.: Experimental Reconstruction of the Esophagus by Granulation Tubes. *Surg. Gynec. & Obst.*, 1922, xxxiv, 767.

Oesophageoplasty for carcinoma of the esophagus requires the resection and replacement of segments of the duct. As the esophagus has no serous coat and repair must take place through the formation of granulation tissue, leakage will occur until healing is complete.

The author's plan consists of a two-stage operation. In the first stage a segment of the esophagus is exposed through a vertical incision and packed off with gauze, the ends of which are brought out of the incision. In the second stage, a week later, this segment of esophagus is resected obliquely and a soft rubber tube of the same diameter is sutured in place. As a rule a gastrostomy is also done at this time. If not, the patient is fed through an opening in the lateral wall of the tube.

The first experiment on animals showed that at the end of a week a bed of granulation tissue had formed behind the gauze. A rubber tube was then put in place and the animal fed through an opening in the tube. Five days later the tube became loose and was removed. The lower end of the esophagus was found firmly attached to the surrounding wall of



Fig. 1. End of first stage of operation. Esophagus isolated from surrounding structures and packed off. In the actual operation, packings completely separate the organ from the trachea, great vessels, and muscles.



Fig. 2. End of second stage of operation. A portion of the esophagus has been resected and replaced by a rubber tube sutured into place above and below. The tube lying on a bed of granulation tissue.

granulation tissue. Autopsy on the eighth day showed that the posterior wall of the granulation tube had become covered with newly formed epithelium similar to that of the normal esophagus. Microscopic study showed termination of the muscularis and mucous cells. Vascularization was more marked toward the free end. The new epithelium differed from the normal in that there were no papillae, it stained more deeply, the nuclei of the cells were round throughout, and active mitosis and polynuclear infiltration were present.

In the second experiment the animal was able to take food by mouth at the end of two weeks, only a small portion returning through the fistula, but regurgitation often occurred a few minutes after the food was swallowed. Autopsy one month later showed that the defect was occupied by a tube of granulation tissue loosely attached to the surrounding tissues. There was no stenosis of the tube and the epithelial lining was complete. Macroscopic examination revealed a mucous membrane similar to the normal. The papillae were well marked and there was a layer of tissue similar to the submucosa of the esophagus.

The third experimental animal was kept for seven months and fed soft food on account of a stenosis at the site of the tube. This stenosis was not progressive, but had narrowed the oesophageal lumen by about one-fourth. Autopsy showed the epithelial layer to be complete. Drawing together of the oesophageal ends had reduced the defect by one-half.

The authors conclude that the operation described is applicable to cases of carcinoma in the thoracic portion of the esophagus through the posterior approach of Lilienthal. A granulation tube is formed which shows some stenosis but the latter is not progressive.

WILLIAM J. FISKE, M.D.

Miller, G. H., Bowing, H. H., and Stepp, L. L.:
A Study of Experimental Pyloroplasty. *Surg.*
Gynec. & Obst., 1932, XXXIV, 793.

Eight dogs were used for the operation described. In order to secure a flap in which a free blood supply could be maintained, the proximal end of the duodenum and the adjacent end of the stomach were opened by an incision begun on the ventral aspect of the duodenum about 3 cm. beyond the pyloric sphincter and the ventral wall of the stomach and extended to a point in the stomach about 4 cm. proximal to the pyloric ring. From this point two curved incisions were made almost to the greater curvature of the stomach to form a flap of the stomach wall the shape of a half crescent. This flap, which had a good blood supply at its base from one or two large branches of the right gastro-epiploic artery, was then drawn into the first incision, fastened by its tip at the duodenal extremity of the incision and, after all redundant mucosa had been trimmed away, firmly fixed in its new location by a line of continuous sutures carefully placed so as to secure complete hemostasis and edge-to-edge approximation without inversion. The incisions made in outlining the flap were then closed by lines of sutures extending to either side from the base of the flap.

In four of the dogs the incisions were made through all the coats of the stomach and duodenal walls. In the other four an exactly similar operation was done except that the incisions were made only to the submucosa. The recovery of the eight dogs was uncomplicated. At autopsy none showed extensive peritoneal adhesions or other evidences of peritonitis. In all, it appeared that the pylorus had functioned normally.

Other operations were performed to test the action of the pylorus in the presence of a decided enlargement. The Heineke-Mikulicz operation slightly modified in that the sutured edges were not inverted was also done, and in two of the dogs the incisions were made only down to the submucosa. On another series of eight dogs the Rammstedt operation was done with the modification that a strip of the serous and muscular coats was resected to allow greater prolapse of the mucosa. Further tests were made to determine the importance of the muscular coats in the mechanical strength of the gastro-intestinal wall. Segments of the jejunum were removed from a dog just killed and the degree of pressure necessary to rupture them was determined under the following conditions; (1) when all the coats were intact; (2) when an incision was made through the serous and muscular coats down to the submucosa; and (3) when an incision was made from inside the lumen through the mucosa and submucosa, the muscle being left intact. Each of the tests was repeated three times. The conclusions arrived at by the authors on the basis of these experiments and tests were as follows:

1. A plastic flap operation or the Heineke-Mikulicz operation gives temporarily a true enlarge-

ment of the pylorus if the edges sutured are not turned in.

2. A normal pylorus enlarged by any of the procedures described except the Rammstedt operation tends to return to its normal size. Whether a stenosed pylorus thus operated upon would return to its former stenosed condition or retain a lumen of normal size is still uncertain.

3. A plastic flap operation is unsatisfactory because it requires extensive incisions into the lumen of the canal and because of its tendency to retract and restore the divided pyloric sphincter.

4. Under favorable conditions the Rammstedt operation or so-called "partial pyloroplasty" is the most effective method of enlarging the pylorus. It has the advantage that it is the simplest operation yet devised for this purpose and does not require prolonged anesthesia. The objections sometimes raised to it are: (1) the danger of hemorrhage from the exposed submucosa; (2) the danger of peritonitis from puncture of the mucosa; (3) recurrence of the stenosis; and (4) the danger of rupture at the weak spot created. The first two of these dangers can be avoided if extreme care is used in performing the operation. The third objection has already been answered clinically. The fourth is shown to be unfounded on account of the strength of the submucosa. The principle of the Rammstedt operation should not be confined entirely to cases of congenital stenosis but should be more generally applied in the surgery of the pylorus. E. C. ROBITSHEK, M.D.

LEGAL MEDICINE

Reputation Not Deemed at Stake—Evidence and Questions in Sponge Case. *Cochran et al. vs. Gritman* (Idaho), 203 Pac. R., p. 286.

In affirming a judgment for \$6,000 damages for injuries from the alleged negligent leaving of a gauze sponge in the abdominal cavity when an appendectomy was performed, the supreme court of Idaho stated that the defendant insisted on a new trial on account of certain alleged errors and urged consideration of the fact that above and beyond the pecuniary amount awarded by the jury the professional reputation and good name of the defendant as a physician and surgeon, which it had taken him a lifetime to build up, was at stake. The court did not take the view that this result usually follows a verdict of this kind or that it should do so. In view of the great number of operations performed by surgeons and the highly technical character of the work, it is greatly to the credit of the profession that comparatively few mistakes are made. The law requires only that degree of care which is ordinarily and commonly recognized as reasonable under the particular facts and circumstances of a given case. However, when unsatisfactory results follow an operation of this character, when it is claimed that they were the direct result of failure to exercise such reasonable care as is ordinarily used by surgeons under similar conditions, and when

competent proof is offered in support of such claim, the question of whether such case was used as the law requires becomes a question of fact to be determined by the jury under proper instructions.

The defendant contended that since this wound was septic and yet healed, and since all of the testimony of the experts was to the effect that it could not have healed if a foreign body had been left in contact with it, it is to be presumed that no such body was allowed to remain there. A case was cited in which it was held that when physical conditions are such as to preclude all reasonable probability that the testimony of a witness is true, it being contrary to well-known physical laws, the jury should be instructed to disregard such testimony. In the opinion of this court, however, that principle had no application to the facts and circumstances of the case at bar because the science of medicine and surgery has not reached such a state of perfection that it can be claimed that, since a given cause will produce a certain result, the failure of such result to follow proves that the cause does not exist. Moreover, there was substantial evidence in this case that the wound never healed.

The court stated also that it was not misconduct for the counsel to read from medical authorities the questions he had asked the expert witnesses when the matter read in each instance was the same matter with only the slight variation necessary to put it in the form of a question and when the expert witnesses had stated that the book was a standard authority.

All of the matter objected to was merely a statement in argument of questions propounded to the expert witnesses. It was urged that a hypothetical question asked of a surgeon called for his expert opinion with reference to the ultimate question for the jury to decide, but it may be put to the witness hypothetically whether, if certain facts testified to or shown to be within his own personal knowledge are true, he can form an opinion, and what that opinion is. This still leaves the ultimate fact for the jury's decision, giving due weight to the opinion.

J. A. CASTAGNINO.

Injury and Pre-Existing Disease under the Workmen's Compensation Act. *Springfield District Coal Mining Co. vs. Industrial Commission et al.* 111, 112 N. E. R., p. 711. *Rockford Hotel Co. vs. Industrial Commission et al.* 110, 111 N. E. R., p. 759.

The supreme court of Illinois stated, in the first case, that an employee is entitled by the Illinois statute to be compensated for every accidental injury suffered in the course of his employment and arising out of that employment. If an injury sustained is the proximate cause of the incapacity for which compensation is sought, the previous physical condition of the employee is unimportant and he may recover for permanent incapacity which results from an accident independent of pre-existing disease.

He is not entitled to compensation for a condition resulting from a pre-existing disease and not from an injury suffered in the course of employment and

arising out of it but if there was a pre-existing disease he is entitled to recover for all the consequences attributable to the injury in the acceleration or aggravation of such disease. Such aggravation or acceleration, permanent and progressive in its nature, will entitle the employee to compensation to the extent and in the proportion in which the pre-existing disease is increased or aggravated.

A mere predisposing physical condition does not affect the right to compensation. If an accident results in a lesion or a new condition of which it is the proximate cause, there may be recovery of compensation, regardless of predisposing conditions making the employee more susceptible to the injury.

Under these rules, the previous condition of the employee who, in this instance, had myocarditis before he was injured, was a material circumstance to be considered in ascertaining whether his condition of total and permanent disability resulted from the accident suffered in the course of his employment and arising out of it, or from the disease, and if from both, the proportion in which the accident contributed. For the proper ascertainment of this, the case was remanded.

The second case was that of an employee who had some disease, mild in form, which caused spasms or convulsions of not very frequent occurrence, and who fell into an ash pit, was badly burned, and died about three months later. The Industrial Commission made an award to his widow, but a court set it aside. In reversing the judgment of the court and directing that it confirm the award, the supreme court of Illinois stated that some courts hold that when an employee is seized with a fit and falls to his death, the employer is not liable because the injury did not arise out of the employment. A majority of the courts, however, American and English, hold that if the injury was due to the fall, the employer is liable even though the fall was caused by a pre-existing idiopathic condition. In the case under consideration the employee died from the burns he received from falling into the pit and not from his pre-existing disease. J. A. CASTAGNINO.

Liability of Hospital for Negligence of Nurse in Administering a Hypodermic. *Madison vs. Evangelical Lutheran Hospital Association* (Neb.), 185 N. W. R., p. 330.

In this case the court held that a hospital incorporated and conducted for private gain is liable to patients for the negligence of nurses and other employees, and that a hospital built and maintained by a private subscription and the subscription of stockholders, which declares dividends to its stockholders and usually charges reasonable fees for services rendered, is not an eleemosynary institution, but run for private gain and is responsible for the negligence of a nurse acting within the scope of her duties.

The plaintiff was a young man in robust health who was treated for hernia. About an hour before the operation one of the hospital nurses inserted a

hypodermic needle at a point near the elbow of his right arm and administered an injection preliminary to the anesthetic to follow. The plaintiff then experienced a severe pain which extended down into his hand and fingers. On regaining consciousness after the operation he complained of pain in his hand and elbow and from that time onward his hand was never entirely free from pain and discomfort and both his hand and arm became impaired and deficient in strength. A physician who made an examination of the injured member and inquired thoroughly into the history of the case traced the injury back to the hypodermic given at the hospital.

The court stated that, taking into consideration the health and strength of the plaintiff and the fact that his deficiency or weakness dated solely from the injection of the hypodermic, it was plainly apparent that the administration of the hypodermic injection by the nurse was responsible for the injury.

J. A. CASTAGNINO.

Overlapping of Bones Indicative of Negligence.

Polley vs. Rubin (N. Y.), 191 N. Y., Supp., p. 428.

The plaintiff was under the defendant's care in a hospital for seven weeks for treatment of a fracture of the leg. The defendant contended that at the

expiration of that time there was no union of the bones. There was evidence that it was "an exception to have a case go seven weeks without knitting."

The defendant offered no explanation of this unusual result. On the other hand the plaintiff testified that the defendant told him from time to time that the bones were uniting and that the leg was progressing satisfactorily. From the evidence of the plaintiff and his wife and one of the hospital nurses, it appeared that there was an unusual protuberance on the leg when the plaintiff left the hospital. When he returned about a month later it was admitted that there was an overlapping of the bones, and this condition continued until the second operation, which gave a satisfactory result. There was no evidence of contributory negligence except that the defendant testified that the plaintiff left the hospital prematurely and contrary to his orders. This was denied by the plaintiff, who stated that the defendant told him he might go home and should return in about a month.

The court stated that it was within the province of the jury to say that the result was due to the negligence of the defendant, especially as the second operation removed the difficulty and left the plaintiff in a normal condition.

J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Heite, J.: Hypertension and Uterine Fibromata
(Hypertension et fibromes utérins). *Bull. Acad. de med.*, Par., 1913, LXXX, 422.

The frequency of hypertension in women with uterine fibromata is given by Vaquiez as follows:

Of 108 women showing an arterial tension above 18 (Riva Rocci), nine had undergone hysterectomy for fibroma and twenty-two still had fibromata. Of 108 women whose pressure tested on several occasions was above 16-18, forty-five had fibromata or had been treated for them and twenty-nine showed a permanent pressure higher than 20-22.

From a study of the coincidence of hypertension and fibromata Heite draws the following conclusions:

1. Radical operative procedures should be abandoned in cases of fibroma with hemorrhages. These hemorrhages have a useful function as they oppose the progress and noxious effects of hypertension. The indications in such cases are rather for radiotherapy.

2. The functional circulatory capacity should be determined in all cases of fibroma. It must not be thought that modified duty cases when the hemorrhages are arrested and the volume of the fibroma is reduced. Even if the tension is then normal it may become elevated in the following months either temporarily or permanently. Sometimes this evolution will be manifested only after one or several years. Therefore regular and prolonged supervision of all such cases is of importance. By the avoidance of fatigue, by a suitable diet, and by other physical measures and, in severe cases, by small monthly emmenagogues, the renal, cerebral, and cardiac complications which so frequently develop in permanent arterial hypertension will be retarded and the period of toleration prolonged. W. A. BRENNAN.

Pastor, M.: A Case of Fibromyomatous Uterus Retaining a Dead Fetus for Several Months
(Un caso de útero fibromiomatoso con retención durante algunos meses de un feto muerto in útero). *Panice, Valencia*, 1911, vol. 62.

The patient was a multipara with metrorrhagia and what appeared to be a large uterine fibromyoma. Further examinations suggested a pregnancy which had been interrupted about the third month, a diagnosis substantiated by the elimination of fragments of bone through the vagina.

A subtotal hysterectomy was done. When the uterus was opened the skeleton of a fetus of about four and one-half months was found lying between two submucous fibromyomata with its cephalic pole low. The upper myoma was implanted in the

fundus of the uterus and the lower in the segmental portion of the uterus and so situated as to occlude the internal orifice of the cervix completely.

The author states that the metrorrhagia was due to the tumor and that in a dead fetus less than five and more than two months old putrefaction is the only change that can occur when the uterus is infected. W. A. BRENNAN.

Hinrichs, R.: The Operability of Uterine Cancer
(Zur Operabilität des Uteruskrebses). *Zentralbl. f. Gynæk.*, 1912, XLVI, 373.

At the suggestion of Winter, the author reviewed the cases of uterine carcinoma treated at the Kiel Gynecological Clinic from 1910 to July 1, 1911, with the exception of the years 1911, 1912, and 1914. Cases were designated as operable in which clinically the carcinomatous proliferation seemed to be limited to the uterus or the parametrium was not infiltrated sufficiently to make a vaginal or abdominal operation very difficult technically. Cases were considered inoperable in which the carcinomatous infiltration had extended to the surrounding tissues and the uterus was fixed. Sixty-seven per cent of the cases were operable and 33 per cent were inoperable. The number of inoperable cases increased 6.4 per cent from 1913 to 1918 and 18 per cent from 1910 to 1920. HANDORN [Z].

ADNEXAL AND PERI-UTERINE CONDITIONS

Beuttner, O.: Transverse Wedge Excision of the Fundus of the Uterus Preparatory to the Bilateral Extirpation of Diseased Adnexa (Die transversale fundale Keilexcision des Uterus als Vorakt zur Extirpation doppelseitig erkrankter Adnexe). *Arch. f. Gynæk.*, 1912, CXV, 461.

The author briefly describes his conservative treatment of inflamed adnexa which he first published in 1908 and reports twenty-two new cases similarly operated on. The method consists essentially in preliminary wedge excision of the fundus of the uterus. Following ligation of the uterine arteries, the wedge excision of the fundus of the uterus is done with hemisection of the wedge and the wound is closed. The tubes are then extirpated with conservation of the healthy ovarian tissue and tying of the broad ligament. The sutured wound in the uterus is then covered with peritoneum.

This operation should be performed only under the following conditions: (1) when the patient is young; (2) when the tubal affection is bilateral; (3) when normally functioning ovarian tissue can be conserved; (4) when the changes are in the fundus of the uterus; and (5) when the changes in

the adnexa are so marked that it appears justifiable, in order to simplify the technique, to extirpate the adnexa according to the principles of Faure, i.e., from the middle line of the pelvis outward and from below upward.

DUMONT (Z).

Botin, E.: Ectopic Pregnancy Followed by Tubal Abortion; Expulsion of the Fœtal Skeleton Through the Urethra (Gestación ectópica seguida de aborto tubárico; expulsión por la uretra del esqueleto fetal). *Arch. de ginec., obst. y pediat.*, 1922, xxxv, 65.

The patient was a woman aged 63 years. Her history indicated an extra-uterine pregnancy followed by tubal abortion occurring at about her thirtieth year of age when the fœtus was about five months old. The fœtus was then carried in the abdomen as a fœtal cyst. The condition for which Botin was consulted was a chronic ascending kidney infection (purulent pyelonephritis). For this and the resulting urinary intoxication the only operative procedure which was practical because of the patient's condition was hypogastric section and incision of the bladder. According to the history of the case as furnished by the patient's family physician numerous remnants of a fœtal skeleton had been discharged through the urethra within the previous six months. The bones were easily identified as belonging to a five-months' fœtus.

When the bladder was opened a large calculus was found encrusted upon a piece of bone. The site of a previous perforation of the bladder wall could be easily made out by the exploring finger. The bladder was drained but the uræmia progressed to the point of complete anuria and the patient died forty-eight hours after the operation.

W. A. BRENNAN.

Zarate, E., Rojas, D. A., and Widakovich, V.: A Case of Extra-Uterine Pregnancy with Living Fœtus at Term Operated upon During False Labor Pains with Survival of the Mother and Child (Sobre un caso de embarazo extrauterino con feto vivo y de término, operado durante el falso trabajo de parto, con madre e hijo vivos). *Semaná méd.*, 1922, xxix, 453.

In the second month of pregnancy the patient, a 22-year-old woman, had a hæmorrhage accompanied by pain and nausea but the pregnancy continued normally. In the seventh month coagulum was expelled through the vagina. A thorough examination at this time led to a diagnosis of extra-uterine pregnancy at term with false labor pains. A median laparotomy was therefore done. The isthmic part of the right tube was found to constitute part of the fœtal sac. The fœtus was extracted alive with its membranous covering.

When the fœtal sac was opened a large quantity of amniotic fluid escaped into the abdominal cavity. The sac and placenta, which were firmly adherent to the sigmoid colon and rectum, were freed from their adhesions and removed with about 5 or 6 cm. of the tube and the right ovary. The operative wounds were sutured and drained.

The fœtus weighed 2,860 gm. It showed several deformities, chief of which was failure of development of the neck. The specimen removed (placenta and sac) weighed 850 gm. Anatomical examination demonstrated that the condition was a tubo-abdominal pregnancy.

According to the authors, the cardinal points for the diagnosis of extra-uterine pregnancy at term with a living fœtus are: diffuse abdominal pain in the early weeks; absence of two or three menstrual periods; the symptoms of rupture with or without external hæmorrhage; increased weight in the lower abdomen; fœtal movements perceived by the mother in a more superficial situation than the normal and provoking pain; and false labor pains.

According to Sithnar's statistics the maternal mortality in advanced cases of extra-uterine pregnancy up to 1886 was 33 per cent; from 1887 to 1890, 40 per cent; from 1891 to 1895, 27 per cent; and from 1896 to 1902, 17 per cent. The recent decrease is attributed to improvement in obstetrical technique and the restriction of operative measures to laparotomy since the time of Lawson-Tait. The maternal mortality of marsupialization was formerly 45 per cent, the principal causes being infection, hæmorrhage, and intestinal fistula. When the placenta was removed the mortality fell to 15 per cent. In the past ten years it has been 25 per cent; with direct elimination of the placenta, 10.5 per cent; and with indirect elimination of the placenta, 5.2 per cent.

W. A. BRENNAN.

EXTERNAL GENITALIA

Cherry, T. H.: Secondary Perineal Repair: Description of a Simple Technique. *Surg., Gynec. & Obst.*, 1922, xxxiv, 803.

In normal delivery the posterior segment of the pelvic outlet is distended and thinned by the presenting part but as a rule this leads to no serious damage. When there is disproportion and interference is practiced, deep lacerations usually occur and may involve the trigonum down to and through the sphincter ani. Improper union of the triangular ligament is followed by eversion of the vaginal outlet and a general lowering of tone of the entire perineal body. When pregnancies follow one another in rapid succession without sufficient time for complete involution of the perineum the puborectalis muscles and the triangular ligament become stretched, thinned out, and separated from their insertion, with resulting general relaxation of the entire pelvic outlet leading to rectocele, cystocele, retrodisplacement, and partial uterine prolapse.

The operative technique used by the author in over fifty cases is as follows:

The mucocutaneous junction of the vulva is opened up between the openings of the Bartholin ducts on each side and after a line of cleavage is found the mucous membrane is dissected up. By lateral dissection with gauze, the puborectalis muscles and their sheath are exposed. The separated

muscles are then brought together with interrupted No. 2 chromic gut sutures. After the excision of a A-shaped portion of the excess of vaginal mucous membrane the edges are approximated by a continuous subcutaneous suture until the cutaneous junction is reached. There then remains a space bounded posteriorly by the approximated levator muscles, above by the approximated vaginal mucous membrane, and anteriorly by the cut edges of the triangular ligament and the skin perineum. To obliterate this dead space a suture is passed through the left upper angle of the triangular ligament, then through the midportion of the approximated levator muscles, and then through the right upper angle of the triangular ligament. The edges of this ligament and the skin perineum are next approximated, the latter by a subcuticular stitch. H. W. FISK, M.D.

MISCELLANEOUS

Forsdike, S.: Sterility. *Practitioner*, 1922, LVIII, 243.

In this discussion the author considers only primary sterility and its treatment insofar as it concerns the family physician.

A complete physical examination of both the man and the woman is of course the first essential. Microscopic examination of the ejaculation of the male is also necessary.

The author calls attention to what he terms "selective sterility"—incompatibility of the pair even though they are anatomically and physiologically normal. The causes of sterility in the female are given in detail and are those usually cited.

The treatment to be given by the general practitioner is medical. Pluriglandular therapy with local treatment yields the best results. Ovarian extract alone is of very little value.

HARVEY B. MATTHEWS, M.D.

Fonseca: Urethro-Perineal Urinary Fistulae (Connexões entre os ductos urinários urethro-perineais). *J. Emed. med. e Cir.*, 1922, XII, 249.

The author classifies his cases into three groups. The first includes those in which a fistula leads into

a urinary abscess and a urethral stricture is present. In such cases it is necessary to destroy the abscess cavity, to perform a urethrotomy, and to keep the tract dilated. The second group of cases includes those with a fistula into a urinary abscess and gonorrheal proctitis without urethral stricture. The third group includes those with fistula into a urinary abscess in the presence of a general infection of the urinary tract. Each case demands active surgical intervention. LOYAL E. DAVIS, M.D.

Engelmann, F.: Varicocele of the Broad Ligament and Its Clinical Significance (Die Varicocele des Ligamentum latum und ihre klinische Bedeutung). *Zentralbl. f. Gynäk.*, 1922, XLVI, 356.

The author describes a disease picture which has received little or no mention in the German textbooks, but has been known in the French literature for a long time. In this condition the venous plexus in the broad ligaments shows a pathologic dilatation similar to varicocele in the male. The term "varicocele of the broad ligament" is therefore proposed for it.

In pronounced cases there is a characteristic syndrome, consisting chiefly of abdominal pain which is made worse by standing, walking, defecation, and sexual stimulation, namely, conditions which favor hyperemia. Pregnancy and changes in the position of the genital organs must be regarded as responsible for its development. The venous dilations in the broad ligament are frequently associated with changes in the ovary (inflammation and small-cyst degeneration), but often are the only pathologic lesion found.

In light cases the treatment consists in measures to decrease the venous congestion. In severe cases operation is indicated, the nature of the procedure being dependent upon the findings. Frequently correction of the position of the uterus is sufficient but in other cases extirpation of the adnexa is necessary. Up to the present time positive results have not been obtained by ligation of the veins similar to that done in the treatment of varicocele in the male.

MARTIN Z.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

De Wesselow, O. L. V.: Some Chemical Observations on the Toxæmias of Pregnancy. *J. Obst. & Gynaec. Brit. Emp.*, 1922, XXX, 21.

The author's report is not concerned with the etiology of eclampsia and the allied toxæmias of pregnancy, but deals with the results of an attempt to estimate the value of chemical methods of investigating these conditions.

The available methods of estimating renal and hepatic function are discussed at length. Two distinct types of defects of renal function are known, one characterized by inability on the part of the kidney to excrete substances for which there is a renal threshold and the other characterized by inability of the kidney to deal with non-threshold substances. "The typical threshold substance is sodium chloride and the typical non-threshold substances are urea and other nitrogenous waste products. Defective elimination of sodium chloride is the characteristic of hydropic or parenchymatous nephritis, while failure to excrete urea and other waste nitrogenous products is typically seen in azotemic or interstitial nephritis." In addition, estimations of the total non-protein nitrogenous substances of the blood, of the diastolic index of the urine, and of the blood pressure yield further information as to the condition of the kidney.

In dealing with hepatic function we are more or less at sea for we have no very accurate chemical method of estimating the degree of hepatic failure. The author has endeavored to show that by a chemical examination of the blood plasma and urine together with blood-pressure readings we can obtain very definite and helpful data which will aid materially in the treatment and prognosis of the toxæmias of pregnancy.

The material for this study was obtained from twenty-nine cases of normal pregnancy in St. Thomas' Hospital, London. The following conclusions are drawn:

1. There is no definite evidence that in the toxæmias of pregnancy we can detect chemically the presence of a liver lesion *per se*.
2. There is no chemical evidence of the existence of a hepatic toxæmia of pregnancy as distinct and separate from a nephritic toxæmia of pregnancy.
3. Chemical examination of the blood is of very definite value in indicating what form of treatment is indicated and to what extent the life of the mother is endangered.
4. Lacking methods of estimating hepatic function, we must be guided by the known renal efficiency tests in the management of the toxæmias of pregnancy.

HARVEY B. MATTHEWS, M.D.

Paddock, C. E.: Hyperemesis Gravidarum. *Surg., Gynec. & Obst.*, 1922, XXXIV, 633.

The late vomiting of pregnancy is one of the multiple manifestations of toxæmia, and may call for the attention of the gynecologist, the ophthalmologist, the internist, the physiochemist, and the neurologist as well as the obstetrician.

The vomiting of early pregnancy may be divided for convenience into three stages:

1. The nausea with slight vomiting of mucus which comes on soon after the first missed menstrual period.

2. The stage of constant nausea in which all foods are rejected, the vomitus contains bile and blood, the urine becomes scanty and contains albumin, casts, diacetic acid, and acetone, and the skin becomes dry and hot though there is little, if any, rise in the temperature.

3. The marked acidosis in which the vomiting may be decreased and there is more or less delirium; the urine is scanty and shows an increase in casts, blood, and albumin; and there is a slight rise in temperature. Frequently all vomiting ceases, and the patient seems to be recovering, but the damage already done the liver and kidneys is so great that death results.

Hyperemesis gravidarum in early pregnancy is rare, but vomiting in early pregnancy is not unusual and the two conditions must be differentiated. The psychic element plays an important part in the treatment of the vomiting of pregnancy, but it must not be forgotten that a so-called physiological vomiting may become a hyperemesis through neglect.

Termination of the pregnancy is the last resort in the treatment of hyperemesis gravidarum. The author reports the histories and treatment of three cases by duodenal tube feeding. To Paddock's knowledge, this is the first report of such treatment, and while three cases are not sufficient to prove its value he is convinced that the method has its place.

C. H. DAVIS, M.D.

Paddock, C. E.: The Treatment of Hyperemesis Gravidarum by the Duodenal Tube. *J. Am. M. Ass.*, 1922, LXXVIII, 1611.

The condition of the patient when she entered the hospital on March 4, 1922, was alarming. She was in a state of exhaustion, her skin was hot and dry, her lips were parched, and vomiting of blood was almost continuous. Her temperature was 99 degrees F., her pulse from 136 to 150, her respiration 24, and her blood pressure 118 systolic and 68 diastolic.

On March 5 the duodenal tube was passed into the stomach. The patient was restless during the night, gagging most of the time. When the tube

was in the duodenum she was fed for one hour by the slow drip a 2 per cent glucose and 2 per cent aqueous solution of sodium bicarbonate. This formula was used through the day at three-hour intervals.

With the entrance of the tube into the duodenum, the patient was relieved almost immediately, the eructation of gas becoming less frequent and the distress less painful.

On March 1, feeding at three-hour intervals was continued through the day with a formula consisting of 2 oz. of a 2 per cent glucose solution, 2 oz. of milk, 2 oz. of water, and 15 gr. of a bouillie.

On March 8 and 9 feeding by the tube was continued, the formula being supplemented by milk, maltose, fruit juice, and eggs besides physiological sodium chloride solution. These feedings were retained. The temperature was then normal, the pulse 120, and the respiration 20.

On March 23 the tube was removed and the patient fed by mouth. On the removal of the tube, recovery continued easily and rapidly.

The principal indication for the use of the duodenal tube is the loss of weight due to starvation or dehydration of the tissues, in other words, the depleted condition that arises from the excessive vomiting.

EDWARD L. CORSEY, M.D.

Novak, E.: Hydatidiform Mole and Chorio-Epithelioma: A Clinical and Pathologic Study. *J. Am. M. Ass.*, 1922, lxxxvii, 1771.

Statistics on the occurrence of hydatidiform mole exhibit wide variations. One authority gives an incidence 240 times as great as that given by another. The figures of most writers indicate that about 20 per cent of all cases of chorio-epithelioma follow hydatidiform mole. Novak is strongly inclined to the opinion that statistics in the literature exaggerate the frequency with which hydatidiform moles become chorio-epitheliomatous. When one considers, on the one hand, the frequency with which cases of hydatidiform mole are overlooked or not reported, and on the other hand, the relative rarity of chorio-epithelioma, it seems certain that the percentage of cases of mole followed by malignancy must be very much smaller than has been generally supposed.

The characteristic clinical picture of hydatidiform mole is the occurrence of bleeding in early pregnancy and a uterus which is disproportionately large for the supposed stage of the pregnancy. The bleeding occurs usually about the second or third month, is more or less continuous, and may be very profuse. There is little or no complaint of pain.

Also in cases of chorio-epithelioma the most constant symptom is uterine hemorrhage. As soon as necrotic changes occur in the tumor—and this is quite early—an offensive vaginal discharge makes its appearance. This is thin and watery in consistency and of a brownish or bloody color. In the late stages it is extremely fetid. Metastasis into the vulva, vagina, and lungs occurs early.

The histologic features of mole and chorio-epithelioma are identical with those seen in normal pregnancy and similar to the normal trophoblast. It seems to be evident that both hydatidiform mole and chorio-epithelioma arise from the cells of the mother. It is extremely difficult to distinguish malignant tendencies in hydatidiform moles from the microscopic picture alone, and curettage for diagnosis is exceedingly hazardous.

The author distinguishes two fundamental types of chorioma: (1) chorioma benignum or hydatidiform mole, and (2) chorioma malignum or chorio-epithelioma.

In the great majority of cases thorough evacuation of the uterus will cure hydatidiform mole. If bleeding persists it is best to perform a pan-hysterectomy.

H. W. FISK, M.D.

Black, H. A.: Chorionepithelioma. *Colorado Med.*, 1922, xix, 113.

The etiology of chorionepithelioma is unknown but the author believes it is associated with a deficiency in the resistance of the tissues to proliferation of the embryonic elements. Pregnancy is not an essential prerequisite since the condition may occur in the male. There is no particular age limit but in the female it develops more frequently near the extremes of the menstrual period.

The diagnosis should be suspected in all cases of bleeding following hydatid mole, and when, following pregnancy and labor, the uterine bleeding increases in frequency and amount.

The treatment is radical operation without previous curettage. The prognosis is always grave. The author reports three cases. R. E. CHRISTIE, M.D.

LABOR AND ITS COMPLICATIONS

Le Roy des Sarres: Slight Pelvic Narrowing; Rupture of the Vagina, Cervix, and Lower Portion of the Uterus Following the Manipulations of a Midwife; Infection; Extraction of the Fetus and Hysterectomy; Recovery (Leget retournement du bassin; déchirure du vagin, du col et du segment inférieur de l'utérus à la suite de manœuvres exécutées par une matrone; infection; extraction d'un enfant mort et putréfié par les voies naturelles; hystérectomie abdominale; guérison). *Bull. Acad. de méd., Par.*, 1922, lxxxvii, 455.

The case reported was that of a woman of 35 years who entered the hospital with a history of labor pains for three days and prolonged manipulations by a midwife. Examination showed a tear of the posterior vaginal wall, several tears in the cervix extending upward, and a dead fetus presenting by the shoulder. The amniotic fluid escaping was infected. The patient's general condition was very poor. There was no doubt that the lower part of the uterus was ruptured.

The intervention decided upon was a laparotomy and the performance of version by an assistant by internal manœuvres while the surgeon watched the uterine rupture and protected the abdominal cavity.

The rupture of the uterus, about four finger-breadths in length and beginning at the vesico-uterine cul-de-sac was found in the anterior median line. The manœuvre as planned succeeded and the uterus was then removed by a subtotal hysterectomy with care to close the cervix securely. After a stormy post-operative course the woman recovered.

This case is interesting for two reasons: (1) the good result obtained by an abdominal hysterectomy on an infected patient whose condition was particularly poor; (2) the technique employed, extraction of the fetus by the natural route in order not to increase the existing peritoneal infection.

Cæsarean section with suture of the rupture was not done because the severe infection of the uterus indicated hysterectomy. The version was possible because the pelvic narrowing was slight, and even if the uterine rupture were increased by this manœuvre it mattered little in a uterus which was about to be removed. If the version had failed, a hysterectomy would have been done without opening the uterus.

W. A. BRENNAN.

De Lee, J. B.: The Newer Methods of Cæsarean Section. *Illinois M. J.*, 1922, xli, 341.

The newer methods of cæsarean section are the extraperitoneal method of Latzko and the intraperitoneal low cervical incision. Many surgeons use the latter because its technique is easier. The author uses it only for infected young women, and the Porro cæsarean for infected older women.

The advantages of the intraperitoneal low uterine and cervical incision are summarized as follows:

1. The mortality in clean cases is no higher, and in possibly infected cases is much lower than that of the extraperitoneal operation.
2. The morbidity is much lower in clean or possibly infected cases.
3. Abdominal complications are few.
4. There is less danger of rupture in subsequent pregnancy and labor.
5. The operation has a wider field of application.
6. It often obviates craniotomy, Porro cæsarean section, or pubiotomy, and may give a real test of labor.

R. E. CHRISTIE, M.D.

GENTO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Keyser, L. D., and Foulds, G. S.: The Extension of Hypernephroma by Way of the Renal Vein. *J. Urol.*, 1933, 26, 472.

A hypernephromatous kidney with extension of the tumor into the renal vein was removed at the Mayo Clinic. This was studied with the hope of discovering: (1) the point at which the vein was invaded, (2) the manner of its invasion, (3) the effect of the growth on the structure of the venous wall, and (4) whether or not the tumor had invaded other routes, such as the arterial or lymphatic.

The entire upper pole of the kidney consisted of a mottled yellowish solid tumor traversed by fibrous bands which gave it a somewhat nodular appearance. A lapet of tumor tissue extended into the renal pelvis. On microscopic section the growth showed typical hypernephroma morphology.

The renal vein at the hilum was invaded by the growth. The renal artery and vein were dissected out to their terminal ramifications which entered the walls of the renal sinus. Blocks of tissue which included these ramifications for a distance of 1 cm. into the substance of the kidney were excised. A number of sections from the artery and vein at different points in their course from the kidney outward were studied. The arteries exhibited nothing unusual. Cross-sections of the renal vein, however, showed some interesting phases of the extension of hypernephroma by this route.

A section taken from the renal tissue at the point of emergence of one of the smaller radicles of the renal vein contained a small vessel 0.5 by 0.1 mm. in size which was lined by endothelium and had a definite wall of fibrous tissue separating it from the surrounding tumor tissue. No muscle elements could be made out, and there was no internal elastic membrane. Hence the structure was either a venule or lymph vessel, probably the former. The lumen of the vessel was filled with free-lying tissue which consisted of cells and stroma identical in morphology with that of the tumor tissue seen elsewhere. A number of sections through this block showed that the endothelial wall of the vessel remained undisturbed and uninvaded by the tissue growth.

The lumen of a somewhat larger venous branch was also filled with a solid mass of hypernephroma tissue. While the endothelium of the wall had been destroyed, there seemed to be no active mural invasion by the neoplasm. The vein had been markedly dilated, however, and its walls had been thinned by the pressure of the growth. A section from the wall of the main renal vein also showed the lumen to be filled with hypernephroma tissue and

the thin wall infiltrated at various points with lymphocytes although no definite hypernephroma cells were found outside the lumen proper. Numerous sections made at various points along the venous branches showed essentially the same characteristics. The lumina were filled with the mass but the growth showed little tendency to invade or perforate the venous wall.

A study of the intrinsic renal lymphatics failed to reveal any hypernephroma cells in the lymph spaces or other evidence of extension by this route.

The extension of hypernephroma into the renal vein has long been recognized and according to most observers metastasis to the liver, lungs, and bones is brought about in this manner.

All authors are agreed that extension by way of the lymphatics is much less common.

Metastasis from hypernephroma may affect any organ. The very multiplicity of tissues involved secondarily suggests that the blood stream is usually the path of distribution. Metastasis may be found when the renal tumor is so small that it cannot be palpated clinically, and microscopic sections of superficial tumors may be the first to direct attention to the presence of the primary renal growth. Extension by way of the renal arteries is extremely rare if it occurs at all. This will be readily understood if it is considered that under such conditions the growth would have to extend in opposition to the pressure of the arterial current.

In brief, these studies seem to show that as a rule hypernephroma enters the venules and grows forward into the venous lumina. In its extension it exhibits little tendency to invade or perforate the venous wall but the wall loses its endothelium and becomes thinned out in places from the pressure atrophy produced by the growing mass. It is easily understood how minute emboli may break off from time to time and be carried by the venous stream to the lungs. There the cells are arrested or pass on through the capillary bed to the general circulation. Thus metastasis to the bones and other remote tissues occurs. It is suggested by Councilman and MacCallum that the involvement of lymph nodes anatomically unrelated to the kidney primarily involved may occur secondarily from metastatic growths disseminated by way of the blood stream.

Petičić, R.: Carcinoma of the Kidney in Childhood (Nierenkarzinom im Kindesalter). *Zschr. f. urol. Chir.*, 1929, 13, 9.

An 11-year-old girl had a tumor of the left kidney weighing 1,400 gm. Nephrectomy (Blum) was performed successfully. The child's general health improved rapidly and she gained 7 kgm. in weight

in two months. The tumor was examined in the Stoerck Institute. It had its origin at the inferior pole of the kidney and was in general well encapsulated, having broken through into the pelvis of the kidney at only one spot about the size of a lentil.

Microscopic examination showed that, for the most part, the growth was of tubular structure. The type of tube resembled the tubuli recti. In the stroma were collections of lipoid phagocytes, and in the center there was extensive necrosis. There were but few mitoses. Vascular invasions were not demonstrated. Malignancy was shown chiefly by the penetration of the glandular tubes into the fibrous capsule.

The diagnosis was tubular adenocarcinoma arising from the excretory portion of the fetal kidney. The lipoid was regarded as a product of decomposition of the protoplasm of the renal epithelium.

GRAHAM (Z).

Uribe, O.L.: A New Method of Kidney Fixation
(Nuevo procedimiento para la fijación del riñón).
Rev. de med. y ciruj. de la Habana, 1922, xxvii, 331.

The method of fixing the kidney described by Uribe is a capsular fixation method in which the dissection of the capsule is reduced to the minimum. An incision about $\frac{1}{2}$ in. long is made parallel to each edge of the kidney in the upper half of its posterior surface, the internal incision being made somewhat higher than the external, and the capsule which lies between them is dissected to form a sheath. The last rib is then dissected in its outer third, inserted

into the sheath formed in the kidney, and fixed in position with a few sutures.

The author believes that this method is better than the usual capsular fixation as in the latter extensive resection is sometimes necessary and may lead to gangrene.

W. A. BRENNAN.

BLADDER, URETHRA, AND PENIS

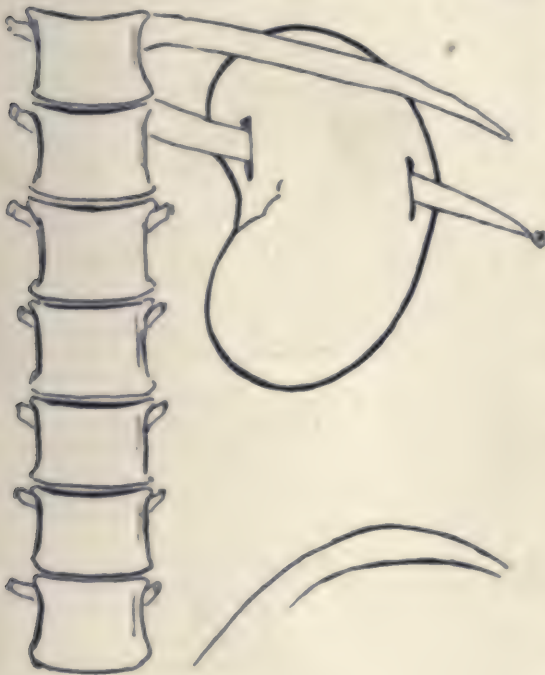
Cristol, V.: Abnormal Opening of the Rectum into the Bladder in the Infant (L'abouchement anormal du rectum dans la vessie chez le nouveau né).
J. d'uroi. méd. et chir. 1922, xlii, 241.

Toward the end of embryonic development the terminal segment of the intestine and the intra-fetal portion of the allantois which later becomes the bladder form a single cavity, the internal cloaca, which is separated from the exterior by the cloacal membrane. Later the internal cloaca is divided by a septum into two parts, the anterior of which becomes the urogenital sinus and the posterior the anorectal canal. The cloacal membrane forms an anterior urogenital and a posterior anal membrane. When absorbed, the anterior urogenital membrane becomes the urethra in the male and, by reason of the interposition of the muellerian ducts, the urethrovaginal membrane in the female, while in both sexes the posterior anal membrane forms the anal orifice.

If the posterior membrane is not absorbed an imperforate anus results but the rectum occupies its proper position. If the septum between the allantois and the recto-anal canal is faulty there is an opening between the rectum and the urogenital sinus which, in the female, constitutes a rectovaginal or a rectovesical fistula. If the opening is high up between the rectum and the allantoid vesicle it is particularly serious, but as a rule it is low down in the region of the trigonum. The rectal segment occupies various positions in relation to the bladder but in most cases its extremity is extraperitoneal. Usually imperforate anus and a rectovesical or vaginal fistula which does not empty the rectal canal sufficiently are associated conditions, and death soon results from stercoræmia and pyelitis unless an outlet is formed for the collection of faecal material by surgical measures.

Cristol recommends the perineal approach and slight anaesthesia so that the rectum can be seen through the tissues when the infant cries. He carefully frees the rectum without injury to the peritoneum or bladder, sections the fistulous tract midway between the rectum and bladder, closes each opening with fine non-perforating catgut sutures, and opens the rectum and fixes it to the skin without tension with four stitches. If the ampulla of the rectum is too deep, a higher peritoneal incision is necessary to obtain a larger field of view, and if it is not possible to complete the operation in one stage an iliac anus is made so that the rectal ampulla may be freed and brought down to the perineum later.

The author gives the details of a case in which the fistula was approached through the perineum



and found to be too high up for suturing but both openings healed spontaneously. It was necessary to dilate the new anal orifice weekly and to flush the intestine. A year later the infant was seen in a cachectic state with a gummata of the testis. This rapidly cleared up under treatment. Lues appeared to be the predominant etiological factor in all of the cases.

HENRY DIXON, M.D.

GENITAL ORGANS

Vanden Berg, H. J., and Butler, W. J.: Peritonitis Complicating Prostatectomy. *Ann. Surg.*, 1932, 100, 198.

As peritonitis is a very rare complication of prostatectomy, the accidental opening of the peritoneal cavity is usually considered of no importance. A case is reported in which the peritoneum was accidentally opened during the enlargement of the suprapubic opening and the rent was closed in the usual manner. On the fourth day thereafter death followed the usual signs of an extensive acute peritonitis. The cause of death was an acute generalized peritonitis, due probably to soiling of the peritoneum.

This accident can be prevented by not opening the peritoneum and by preventing its contamination

by the bladder contents. The danger is greater in the two-stage operation.

The preliminary cystostomy includes irrigation and distension of the bladder with some sterile solution, which later is drained off by a retention catheter or a trocar puncture, or the bladder may be kept empty, the residual urine being sponged out. The use of an aspirator connected with an electric suction apparatus prevents wound soiling and infection of the space of Retzius.

In the second stage of the operation the bladder is opened as high up near the fundus as possible. The extension of the incision upward from the primary incision fistula is dangerous. If necessary, the primary bladder opening is closed and a second incision is made. The peritoneum is carefully inspected for tears and if these are found they are sutured with catgut. Schmidt advises the insertion of anchor sutures at the upper angle of the bladder incision as high as possible through the muscle, fascia, and skin to prevent herniation of the peritoneal fold. When the bladder is badly infected Williams does a two-stage cystostomy, first exposing the bladder and placing guy sutures, and after four to seven days opening and draining the bladder.

LOUIS NEUWELT, M.D.

SURGERY OF THE EYE AND EAR

EYE

Lane, L. A.: A Study of Tumors of the Lachrymal Gland, with a Report of a Mixed Tumor. *Am. J. Ophth.*, 1922, v, 425.

New-growths of the lachrymal gland are rare. In addition to new-growths the gland may be involved by cysts or dacryops and Mikulicz disease. Mikulicz describes the disease given his name as follows: "A disease beginning in the lachrymal glands and extending to the salivary, of slow growth, without any evidence of bacterial findings, non-inflammatory, and confined entirely to the glands of the head." There are four types of this disease:

Type 1. Symmetrical enlargement of the lachrymal gland and one or more pairs of the salivary glands. There are no blood changes in this type, nor is there any evidence of lymphatic disturbance.

Type 2. Symmetrical enlargement the same as that of Type 1. The blood shows a reduction in hæmoglobin but is otherwise normal. There is some lymphatic enlargement. The picture is that of a pseudoleukæmia.

Type 3. Symmetrical enlargement of the lachrymal and salivary glands together with enlargement of all the lymphatics, the spleen, and the liver. There are profound blood changes with marked leucocytosis. The condition is rapidly fatal, a true leukæmia. Twenty-two of fifty-nine cases studied were found to belong to Types 2 and 3.

Type 4. Physiological enlargements due to grief, weeping, menstruation, and lactation.

No organism responsible for the condition has been found. The general state of the patient was different in each case reported. Pathologically the disease consists of a chronic irritation of the tissues. Hyperleucocytosis in the gland causes sclerosis and destruction of the gland, loss of function, and dryness of the conjunctiva. Microscopic examination reveals no new growth. In the author's opinion the term "Mikulicz disease" should be discarded as soon as a better term is found to replace it.

In a case treated by Lane, a case of mixed tumor, pathologic examination showed masses of squamous epithelium in some areas, glandular epithelium in others, normal connective tissue, myxomatous changes, and masses of lymphocytes.

THOMAS D. ALLEN, M.D.

La Grange, F.: Glaucoma and Its Surgical Treatment (Du glaucome et de son traitement chirurgical). *Presse méd.*, Par., 1922, xxx, 341.

In 1905 the author introduced the anterior subconjunctival fistulization treatment of glaucoma.

In the scleral zone which receives the corneal bevel a strip is resected to make a communication between the anterior chamber and the subconjunctival spaces. This scleral resection consists of the following steps:

1. The sclerotic coat is punctured with a Graefe knife 1 mm. behind the limbus, and when the point of the knife appears in the anterior chamber a counter-puncture is made at a symmetrical point. In withdrawing the knife the sclera and the ciliary tendon are incised. When the scleral incision is made a good conjunctival strip is cut.

2. An elongated resection of the anterior scleral lip is done and the lip is disengaged by raising the conjunctival flap.

3. According to the conditions of the particular case, an iridectomy is done or a peripheral buttonhole incision is made to prevent incarceration of the iris in the wound.

The fistulization method is thus effected by three surgical procedures: simple limbus anterior sclerectomy, sclerectomy with a peripheral iris buttonhole incision, sclerecto-iridectomy.

These operations have been carried out in the following cases:

1. Fifty-nine cases of chronic glaucoma with constant hypertension: (1) by sclerecto-iridectomy in twenty-nine; (2) by sclerectomy with an iris buttonhole incision in fifteen; (3) by simple sclerectomy in fifteen.

2. In forty-five cases of chronic glaucoma with intermittent hypertension: (1) by sclerecto-iridectomy in twenty-five; (2) by sclerectomy with an iris buttonhole incision in four; (3) by simple sclerectomy in sixteen.

In fifteen of these 104 cases the treatment failed. In eight, visual acuity decreased and a cataract developed some time after the operation. Four of these cataracts, however, were operated upon successfully.

In the treatment of chronic glaucoma, therefore, the fistulization method was successful in 85 per cent of the cases whereas iridectomy was successful in only from 25 to 30 per cent.

The results of the author's surgical method prove the correctness of his theory regarding the physiology of ocular tension and the mechanism governing its variations. Since his introduction of the principle of limbus resection of the sclera in 1905 a number of other operative procedures have been devised. Some of these he regards as of value. La Grange prefers Vacher's instrument as modified by Holth to scissors for the scleral resection. Elliot in 1909 suggested the use of the trephine but in the author's opinion this instrument has more inconveniences than advantages as it is not well adapted to the anatomical peculiarities of the region.

W. A. BRENNAN.

Benedict, W. L.: **Retinitis of Hypertension Plus Nephritis.** *J. Am. M. Ass.*, 1938, 105:60.

Though the ophthalmoscopic picture of retinitis in the various types and stages of cardiovascular renal disease is familiar to oculists and internists, the immediate factor leading to the condition is still undetermined. There does not seem to be any particular type of retinitis associated with any particular type of nephritis, and the so-called albuminuric retinitis may be seen with or without hypertension and arteriosclerosis and with or without demonstrable renal insufficiency. Each type of retinitis should therefore be interpreted on the basis of the various ophthalmoscopically visible factors rather than as an entity.

In spite of a possible local mechanism regulating blood pressure, sufficiently long-continued general hypertension in the majority of cases leads to an arteriocapillary fibrosis in the walls of the retinal arteries which is demonstrated ophthalmoscopically as a uniform reduction in the caliber of the arteries, narrowing and accentuation of the arterial reflex stripe, an increase in the caliber of the veins, and arteriovenous compression. These changes are due mainly to an increase in the fibrous and elastic tissue of the media and adventitia of the arteries and are different both pathologically and ophthalmoscopically from those in the primary type of arteriosclerosis in which proliferation of the intima leads to localized obliteration of the lumen of the arteries with ophthalmoscopically visible arterial beading and proliferation of new vessels. In the more advanced stages of arteriocapillary fibrosis more definite contraction of the arteries and the appearance of small exudative or degenerative

plaques in the retina may produce pictures rather closely simulating true primary arteriosclerosis and arteriosclerotic retinitis.

When on such a background of arteriocapillary fibrosis there appear edema of the disc and retina, cotton-wool exudates, and flame-shaped hemorrhages, the picture of the retinitis of hypertension plus nephritis is produced. These additions to the retinal process sometimes occur without any definitely demonstrable reduction of renal function, but are usually associated with a sudden and considerable rise in the blood pressure. They do not seem to depend directly on the retention of urea or allied nitrogenous products, but usually indicate that a renal break has occurred recently or will soon take place, and always strongly suggest that the kidneys have been considerably damaged by the generalized vascular disease.

H. P. WAGENER, M.D.

Wuerdemann, H. V.: **Retinitis Proliferans.** *Am. J. Ophth.*, 1922, 5, 337.

The author shows two cuts to demonstrate the microscopic pathology in retinitis proliferans. He emphasizes the fact that most cases of this condition are traceable to a direct traumatic or other cause but believes there must be an underlying etiological factor in the condition of the blood which predisposes to rapidity of coagulation and slowness of absorption of hemorrhages followed by the organization of blood clot. In his opinion the endotoxins of diabetic conditions are a causative factor, and laboratory studies would often show diabetes in these cases.

J. P. FITZ GERALD, M.D.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Lemere, H. B.: A New Operative Technique for the Operative and Postoperative Treatment of Maxillary Sinus Diseases. *Laryngoscope*, 1922, xxxii, 363.

Lemere describes a modification of the classical Caldwell-Luc operation upon the maxillary antrum which differs from the original procedure largely in the after-treatment. An incision is made through the mucous membrane at the gingival and buccal junction and a portion of the anterior antral wall is removed. Through this opening the naso-antral wall below the inferior turbinate is bitten out with an Ostrom forceps. A rubber drainage tube is then inserted into the antrum and brought out under the upper lip.

Beginning six hours after the operation, the antral mucosa, which has been preserved, is subjected to repeated washings. The rubber tube is withdrawn and the patient irrigates the antrum through the opening in the mouth. When this opening closes after two weeks the irrigations are continued through the nasal opening until the return flow is continuously clear. FRANK J. NOVAK, JR., M.D.

Goldthwaite, R. H.: Plastic Repair of Nasal Displacement and Deformity. *Mil. Surgeon*, 1922, li, 42.

The author reports a case of repair of a nasal displacement and deformity in a patient whose nose was crushed laterally in a boxing contest five years previously and not treated. Nasal breathing had been impossible on either side since the injury. The tip of the nose was displaced 1 in. toward the right. The septum was crumpled so that complete examination of the nasal spaces was impossible.

Under local anesthesia the nasal septum was completely resected. The lateral cartilages were cut loose from the nasal bones on both sides and through this opening the nasal bones were chiseled free from the superior maxilla. The nasal bones at the bridge of the nose were refractured with heavy Ash forceps and reset in approximately their proper position. Rubber tissue drains were inserted into the lateral incisions and both sides of the nose were packed with vaseline gauze. This gauze was removed on the following morning. Nasal breathing was begun on the third day. The patient made an uncomplicated recovery.

The author outlines the treatment for recent and old fractures of the nasal bones.

In recent fractures the nose is cocaineized and a dull-edged periosteal elevator is introduced and slid high up against the lateral wall on the depressed side. A firm lifting movement, guarded by the other

hand placed externally on the nasal bone, will elevate the fragment into place. In cases of simple fracture this often occurs with a snap. In comminuted fracture the tissues must be gradually molded. When the elevator and hand are removed, the bones will remain in position if the set is correct, and will not settle back. If there is any tension or tendency to spontaneous displacement, the packing will not prevent the recurrence of the deformity.

The essential points in the repair of old neglected cases are: (1) complete submucous resection so that resistance of the tissues to operative fracture and resetting is diminished and bilateral nasal breathing can be established; (2) free mobilization of the nasal bones so that they can be set in the desired position and will not be displaced by any natural pull of the adjacent tissues; and (3) entire separation of the lateral cartilages from the nasal bones to permit the cartilage to heal in a new relation to the bone.

WALTER C. BURKET, M.D.

New, G. B.: The Syndrome of Malignant Tumors of the Nasopharynx: A Report of Seventy-Nine Cases. *J. Am. M. Ass.*, 1922, lxxix, 10.

Seventy-nine patients with malignant tumors of the nasopharynx have been examined at the Mayo Clinic during the last six years. Malignant tumors of the nasopharynx are more common than has been believed. The syndrome is not generally known, and there is a striking lack of nasal or nasopharyngeal symptoms. Because of the close relationship of the nasopharyngeal region to adjacent important structures, symptoms of involvement of these adjacent structures should suggest the possibility of nasopharyngeal tumor even in the absence of nose or throat trouble.

The oldest patient was 66 years of age, and the youngest 4. Fifty per cent of them were between 41 and 60 years old. The duration of the symptoms ranged from five weeks to four years and averaged fourteen months. There were thirty-four epitheliomata and thirty-three lymphosarcomata.

Many patients are referred from the Sections of Ophthalmology, Neurology, or General Medicine. The tumors are usually found only after a careful examination. They are sometimes small, often situated laterally in Rosenmueller's fossa, and usually involve one tube. The ordinary No. 2 nasopharyngeal mirror is used in the examination.

In the nasopharyngeal syndrome the pain may simulate that of an acute condition in the ear, may be constant or recurrent, extend over the cheek, mastoid, frontal and temporal regions, or be localized in the eye. At times it is particularly troublesome when the patient lies down. Many patients have their teeth removed in the hope

of relief. One patient had diplopia and severe frontal headache for six weeks. Two patients had occipital pain. If the tumor involves the gasserian ganglion, typical trifacial neuralgia may occur.

Shelton asserts that symptoms and clinical signs of nasopharyngeal tumors involving the gasserian ganglion remarkably resemble closely those of tumors in the cranial cavity involving the ganglion.

Many patients seek relief for enlarged glands of the neck, tinnitus, and deafness. One case of lymphosarcoma was found in the routine examination for keratosis on one side of the nose; the patient presented no symptoms. Twenty-one patients had symptoms referable to the eyes. The most common complaint was diplopia due to paralysis of the external rectus. A complete ophthalmoplegia with choked discs may be found and may be followed by optic atrophy. Twenty-nine patients complained of ear trouble, such as increasing deafness or fullness. The onset may be acute, and paracentesis or a mastoid operation may be performed.

Only thirty-eight patients presented nasal or nasopharyngeal symptoms such as bleeding and obstruction. Fifty-nine patients had enlarged glands of the neck. In three cases a diagnosis of endothelioma was made from the removed gland elsewhere. The condition was sometimes bilateral and was diagnosed as Hodgkin's disease in three cases. The primary lesion may be very small and the involvement of the glands very extensive.

Ankylosis of the lower jaw may occur from direct extension to the pterygoid muscles. In some cases the wisdom teeth were extracted to relieve this. The syndrome of pituitary tumor may be due to direct extension. The jugular foramen syndrome of Jackson was present in two cases. Secondary involvement of the nasopharynx, which occurred in four cases, produced bulging without ulceration. Numerous surgical procedures, such as the removal of glands, teeth, and tonsils, and nasal operations, were performed without discovery of the primary tumor.

W. J. GREENSTEIN, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

Reconstructive surgery. J. F. S. ESSER. Muenchen. med. Wchnschr., 1922, lxi, 502.

Drainage. J. A. BLAKE. Ann. Surg., 1922, lxxv, 385. [267]

An improved method of skin grafting. A. D. PARCE. Ann. Surg., 1922, lxxv, 658. [267]

Simple protection for newly placed skin grafts. F. W. SMYTHE. J. Am. M. Ass., 1922, lxxviii, 1963.

A method of threading with silk worm gut. M. QUAKENBOS. J. Am. M. Ass., 1922, lxxviii, 1890.

Anæsthesia

Some cases of unusual interest to the anæsthetist. W. B. HOWELL. Lancet, 1922, ccli, 1092.

Magnesium sulphate as an aid in anæsthesia. G. T. TYLER. J. South Carolina M. Ass., 1922, xviii, 153.

Ether in the tropics; a new apparatus. A. HOODON. Indian M. Gaz., 1922, lvii, 175.

Local anæsthesia in operations for cancer of the tongue and larynx. H. ABOULKER. Med. Press, 1922, n.s. cxiii, 504.

Personal experiences with local anæsthesia, especially in tonsillectomies. C. A. CAMPBELL. Ohio State M. J., 1922, xviii, 426.

Observations on spinal anæsthesia. D. N. KALYANVALA. Edinburgh M. J., 1922, xxviii, 267.

Notes regarding lumbar anæsthesia. MACIAS DE TORRES. Prog. de la clin., Madrid, 1922, x, 226.

Arterial anæsthesia. B. N. CALCAGNO. Semana méd., 1922, xxix, 661. [269]

Combined anæsthesia. C. RYAN. J. Iowa State M. Soc., 1922, xii, 181. [269]

SURGERY OF THE HEAD AND NECK

Head

Avulsion of the scalp; a review of the literature and the report of a case. C. A. PORTER and W. M. SHEDDEN. Boston M. & S. J., 1922, clxxxvi, 727.

Further observations upon external hydrocephalus. C. E. REYNOLDS. Brit. M. J., 1922, i, 950.

Cholesteatoma of the temporal bone, with the report of an unusual case. J. M. SHEPHERD. Boston M. & S. J., 1922, clxxxvi, 877. [270]

A case of occipital cortical epilepsy due to a retained projectile cured surgically. H. KUNZ. Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1922, xxxiv, 501.

The clinical symptoms of cerebellar disease and their interpretation. G. HOLMES. Lancet, 1922, ccli, 1177.

A contribution to changes in the hypophysis. P. BUECHLER. Ztschr. f. d. ges. Neurol. u. Psychiat., 1922, lxxii, 209.

A new case of occipital encephalocele which was cured. A. M. ARQUELLADA. Pediatría española, 1922, xi, 20. [270]

Traumatic subdural pneumatocele with air in the ventricles. N. W. GREEN. Ann. Surg., 1922, lxxv, 764.

A case of meningocele occipitalis. A. SANTNER. Monatschr. f. Geburtsh. u. Gynaek., 1921, lvi, 151.

The diagnosis of silent intracranial abscess during the ambulatory period. H. ABOULKER. Presse méd., Par., 1922, xxx, 474. [270]

Calculus within the brain; report of a case of intracranial calcification with successful operation and recovery. E. A. MILLER. Surg., Gynec. & Obst., 1922, xxxiv, 786. [271]

A clinical and pathological study of brain tumors in young children. F. H. BARTLETT and M. WOLLSTEIN. Arch. Pediat., 1922, xxxix, 386. [271]

Alcoholic injection of the second and third divisions of the trigeminal nerve: clinical results with a more exact technique. F. C. GRANT. J. Am. M. Ass., 1922, lxxviii, 1750. [272]

The pathogenic and pathological problem of mixed tumors of the parotid. E. FORGUE and G. ROUX. Rev. de chir., Par., 1922, xli, 181.

An enormous nasopharyngeal fibroma; tracheotomy, resection of the left superior maxilla and extirpation of the tumor. B. SOUSA. Arch. d. Hosp. Municipal de la Habana, 1922, i, 5. [272]

Modern methods of facial plastics. K. SCHLAEPFER. Schweiz. med. Wchnschr., 1922, lii, 383. [272]

Reconstruction surgery of the face. V. P. BLAIR. Surg., Gynec. & Obst., 1922, xxxiv, 701.

Cosmetic surgery of the face, neck, and breast. F. A. BOOTH. Northwest Med., 1922, xxi, 170.

Bone surgery of the nose. W. W. CARTER. Surg., Gynec. & Obst., 1922, xxxiv, 800.

Corrective rhinoplasty; some anatomico-surgical considerations. L. COHEN. Surg., Gynec. & Obst., 1922, xxxiv, 794.

Plastic and oral surgery. A. L. MILLER. Dental Cosmos, 1922, lxiv, 616.

Some results of plastic surgery. O. IVANISSEVICH. Semana méd., 1922, xxix, 382. [272]

Neck

A report on recent metabolic findings in the diagnosis and treatment of diseases of the thyroid gland. G. S. FAHENT. Canadian M. Ass. J., 1922, xii, 386.

Types of goiter and their treatment. J. M. WILSON. Am. J. Surg., 1922, xxxvi, 141.

Hyperthyroidism. G. R. MURRAY. *Brit. M. J.*, 1932, I, 305.

The mental side of hyperthyroidism. M. H. WEISSBERG. *Pennsylvania M. J.*, 1932, xvi, 518.

Thyroid incision. H. R. OWEN. *Ann. Surg.*, 1932, lxxv, 167.

The thyroid gland and the toxicosis with special relation to intestinal stasis. W. S. RAINBROOK. *Med. Press*, 1932, lxx, 458, 459, 460.

Low transverse incisions in thyroid operations. W. S. RAINBROOK. *Ann. Surg.*, 1932, lxxv, 460.

Resection versus partial excision of the thyroid gland. M. E. BEARD. *Ann. Surg.*, 1932, lxxv, 441.

The results of hemithyroidectomy in myxoedematous patients. J. L. DIXON. *Semana med.*, 1932, xlix, 912.

Multistage measures in the surgery of severe hyperthyroidism. F. H. LADD. *J. Am. M. Ass.*, 1932, lxxviii, 1872. [273]

SURGERY OF THE CHEST

Chest Wall and Breast

Resection of the sternum for cancer. W. M. NAKAROFF. *Vorhandl. d. Russ. chir. Pirogov-Ges.*, Petrograd, 1931. [273]

The results of unilateral intrathoracic surgery with non-adherent pleura. P. DUBOIS. *Presse med.*, Par., 1932, xxx, 406. [273]

Tumors of the breast. C. H. PICK and W. C. WHITE. *Ann. Surg.*, 1932, lxxv, 541. [274]

Breast tumours. C. C. JOHNSON. *Nebraska State M. J.*, 1932, xvi, 294.

Papillary cystadenoma of the male breast. V. C. DAVIS. *Ann. Surg.*, 1932, lxxv, 522. [275]

Paget's disease of the nipple. A. BUZZI. *Semana med.*, 1932, xlix, 1070.

Cancer of the breast: treatment of the proximal breast. G. L. CHASTLE. *Brit. M. J.*, 1932, I, 859. [275]

Trachea and Lungs

An emergency tracheotomy of unusual interest following thyroidectomy. J. G. SHERRILL. *Am. J. Surg.*, 1932, xliii, 146.

The histopathology of the trachea in persons using tubes. B. GONCHARENKO and G. HOFER. *Monatsschr. f. Ohrenh.*, 1932, lx, 1196.

Subcutaneous rupture of the trachea. L. H. ZEUCH. *Illinois M. J.*, 1932, lxi, 433. [275]

A case of foreign body impacted in the right secondary bronchus. G. N. BROWN. *Lancet*, 1932, ccl, 1194.

Bronchoscopic cases of dental origin. H. H. FORBES. *N. York M. J. & Med. Rec.*, 1932, cxv, 738.

Pulmonary emphysema after operations. C. GORDON. *Westminster*, 1932, cxvii, 386.

The indications and results of thoraco-surgical measures in cases of war injuries of the lung. G. BORREARD. *Muench. med. Wochenschr.*, 1932, lxi, 575.

The treatment of suppurative conditions of the lung. T. E. CORMACK. *N. York M. J. & Med. Rec.*, 1932, cxv, 742.

The treatment of large pulmonary abscesses following sepsis. W. HELMBRANDT and W. GELLEN. *Med. Klin.*, 1932, xvi, 394.

Ten cases of lung tumor treated bronchoscopically. S. VANKAER. *N. York M. J. & Med. Rec.*, 1932, cxv, 741. [276]

Lymphogenous carcinoma of the lung. H. LORENZ. *Fortchr. a. d. Geb. d. Roentgenstrahlen*, 1932, xxxiii, 436.

Primary carcinoma of the lung. R. I. RIZER and H. C. HARRIS. *Minnesota Med.*, 1932, v, 377.

A case of pneumothorax. T. T. BURKITT. *Arch. Radiol. & Electrotherapy*, 1932, xvi, 21.

Tension pneumothorax with a case of pneumoperitoneum. Von THUN. *Ugesk. f. Læger*, 1932, lxxxiii, 1132. [276]

Pharynx and Esophagus

Extra-esophageal foreign bodies. E. SEIFERT. *Ztschr. f. Laryngol., Rhinol.*, 1932, xl, 46. [277]

Four cases of open safety pin in the esophagus of children. E. J. PATTERSON. *N. York M. J. & Med. Rec.*, 1932, cxv, 740.

The etiology of dilatation of the esophagus. GEFMANN. *Wroclawskie Dziej.*, 1932, iii, 15.

Diffuse dilatation of the esophagus. L. UREUTIA. *Arch. españ. de enferm. d. apar. digest.*, 1932, v, 139. [277]

A contribution to the pathology and treatment of Zenker's diverticulum. A. SIFER. *Schweiz. med. Wochenschr.*, 1932, lii, 342. [277]

Closure of an esophago-bronchial fistula with the aid of the endoscope. Z. VON LENSART. *Monatsschr. f. Ohrenh.*, 1932, lx, 1439.

Miscellaneous

Therapeutic oleothorax. A. BERNOU. *Bull. Acad. de med. Par.*, 1932, lxxxv, 437. [278]

An unusual case of mediastinal tumor. T. B. COOLEY. *Arch. Pediat.*, 1932, xxxix, 298. [278]

High position of the diaphragm (relaxation of the right side of the diaphragm). L. NICOLAVSEN. *Norsk Mag. f. Lægevidensk.*, 1932, lxxvii, 375.

Suture of the ruptured left dome of the diaphragm, with radiographic commentary. C. J. MARSHALL and R. KNOX. *Brit. M. J.*, 1932, I, 871.

Congenital false diaphragmatic hernia on the left side. J. A. VAN DONGEN. *Nederl. Tijdschr. v. Geneesk.*, 1932, lxxvi, 382. [278]

Gastric ileus resulting from diaphragmatic hernia. T. HUETTL. *Osteol. hettl.*, 1932, lxxv, 29.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

The atonic abdominal wall. C. RAMAGE. *J. Am. M. Ass.*, 1932, lxxviii, 1711.

The differential diagnosis of hernia. J. E. FULD. *Internat. J. Surg.*, 1932, xxxv, 198.

Contributions to the study and etiology of diverticular

and parietal hernia and their strangulation. G. MONTU. *Policlin.*, Rome, 1932, xlii, sec. prat., 908.

Lateral ventral hernia. J. K. HOLLOWAY. *Ann. Surg.*, 1932, lxxv, 677. [279]

The importance of early operation in congenital umbilical hernia. L. F. WATSON. *Boston M. & S. J.*, 1932, cxxxv, 871. [279]

Lumbar hernia. J. M. MAIDAGAN. *Rev. méd. d. Rosario*, 1922, xii, 14. [279]

Sacro-coccygeal drainage in a case of purulent pelvic cellulitis following an operation for suppurative inguinal hernia. L. GEROLAMO. *Riforma med.*, 1922, xxxviii, 699.

Recurring inguinal hernia. OUDARD and JEAN. *Rev. de chir. Par.*, 1922, xii, 143.

Scrotic hernia. J. E. SUMMERS. *Ann. Surg.*, 1922, lxxv, 672. [280]

Small interrenal accessory rests in a hernial sac. U. STORPATO. *Arch. ital. di chir.*, 1922, v, 233. [280]

Peritoneal cysts. A. GORDELL. *Frankfurt. Ztschr. f. Path.*, 1922, xxvi, 364.

Retroperitoneal cysts with a report of a case. J. G. SPACKMAN. *Hahnemann. Month.*, 1922, lvii, 350. [280]

The surgical treatment of tuberculous peritonitis. C. DECTO. *Arch. ital. di chir.*, 1922, v, 311.

Gastro-Intestinal Tract

Gastroenterology. J. M. BELL. *Med. Herald*, 1922, xii, 182.

Certain conditions associated with deficient secretion in the upper alimentary tract. T. I. BENNETT and E. C. DOMING. *Lancet*, 1922, cclii, 1138.

Pancreoperitoneum as an aid in the diagnosis of cardiopneum. S. IGLAUER. *N. York M. J. & Med. Rec.*, 1922, cxv, 743.

The healing of hypertrophied pyloric stenosis after the Frodel-Ramstedt operation. M. WOLLESTEIN. *Am. J. Dis. Child.*, 1922, xxiii, 511. [281]

The pathogenesis of chronic gastric ulcer. R. NISSEN. *Klin. Wchnschr.*, 1922, i, 715.

Newer conceptions as to the causes of gastric ulcer. K. W. DOWSE. *Wisconsin M. J.*, 1922, xxi, 1.

Hypochlorhydria and peptic ulcer. G. CAMPO. *Siglo med.*, 1922, lxi, 10, 676.

Ulcer and pyloric stenosis in children under 9 years of age. S. CARRO. *Prog. de la clin.*, Madrid, 1922, x, 101.

Focal tenderness in the diagnosis of gastric ulcer. G. VILVANDER. *Lancet*, 1922, cclii, 1947.

Gastroduodenal tubes. T. BARSONY and E. EGAN. *Gyógydani*, 1922, 114.

Some difficulties in the diagnosis of peptic ulcer. A. W. HAMMER. *N. York M. J.*, 1922, cxv, 672.

A case of hour-glass stomach with an inactive ulcer cured by radical operation. I. TANNST. *Riforma med.*, 1922, xxxviii, 649.

Late results of midgastric (sleeve) resection for hour-glass contracture of the stomach (two cases). W. A. DOWNES. *Ann. Surg.*, 1922, lxxv, 760.

Ulcers of the posterior wall of the stomach and duodenum; symptoms, diagnosis, technique of operation. M. BEHREND. *Surg., Gynec. & Obst.*, 1922, xxxiv, 815.

The treatment of chronic ulcers of the stomach and duodenum. C. H. MAYO. *Am. J. Surg.*, 1922, xxxvi, 129.

Acute perforation of gastric and duodenal ulcer. A. H. NOELBERG. *N. York M. J.*, 1922, cxv, 674.

Perforated gastric and duodenal ulcer. A. H. HARRIS. *N. York M. J. & Med. Rec.*, 1922, cxv, 760.

Perforations and the "fatal improvement" (editorial). W. J. MAYO. *Surg., Gynec. & Obst.*, 1922, xxxiv, 821.

A new plastic operation for certain cases of perforating ulcer. T. KALIMA. *Acta Soc. Med. Fennicæ Duodecim*, 1922, iii, 6.

Gastro-enterostomy or resection for gastric ulcer? J. HUBBARD. *Zentralbl. f. Chir.*, 1922, xlix, 308.

The operative treatment of gastric and duodenal ulcer. L. URRUTIA. *Rev. de med. y cirug. de la Habana*, 1922, xxvii, 201. [281]

The surgical treatment of perforated gastroduodenal ulcers. A. KOTZAREFF. *Lynn chirurg.*, 1922, xix, 158. [282]

Our experiences concerning the value of antrum resection in the treatment of peptic ulcer. H. LORENZ and H. SCHUR. *Arch. f. klin. Chir.*, 1922, cxix, 239. [282]

Jejunostomy in ulcer of the lesser curvature and posterior wall of the stomach. W. A. DOWNES. *Ann. Surg.*, 1922, lxxv, 747.

The problems and the progress of gastric ulcer surgery. W. VAN HOOK. *N. York M. J.*, 1922, cxv, 678. [282]

The surgical treatment of gastric and duodenal ulcer, with the end results of gastrostomy. C. A. STEVENS. *Illinois M. J.*, 1922, xli, 428.

The cause and prevention of gastrojejunal and jejunal ulcer. A. O. WILENSKY. *N. York M. J.*, 1922, cxv, 668. [283]

The relative merits of gastrostomy and jejunostomy in cancer of the cardiac end of the stomach. N. W. GREEN. *Ann. Surg.*, 1922, lxxv, 746.

Surgical operation for the gastric crises of tabes. D. GIORDANO. *Riforma med.*, 1922, xxxviii, 530.

The surgery of stomach trouble. B. F. ROBINSON. *Kentucky M. J.*, 1922, xx, 388.

Note on intestinal infection and disinfection. D. WALSH. *Therap. Gaz.*, 1922, xli, 390.

A case of sarcoma of the small intestine. G. G. DIAZ. *Semana méd.*, 1922, xxix, 1052.

Acute intestinal obstruction. D. P. D. WILKIE. *Lancet*, 1922, cclii, 1135. [283]

Intestinal occlusion due to kinking of the small intestine caused by membranous pericolicitis due to a pedunculated fibrous body. O. CIGNOZZI. *Policlin.*, Rome, 1922, xxix, sez. chir., 245. [284]

Acute intussusception. T. T. THOMAS. *N. York M. J.*, 1922, cxv, 656. [284]

The recognition of spastic ileus. NAGEL. *Beitr. z. klin. Chir.*, 1921, cxxiv, 130.

Gangrene of the small intestine due to thrombosis of a branch of the superior mesentery artery. J. N. G. NOLAN. *Lancet*, 1922, cclii, 1194.

Arteriomesenteric occlusion of the duodenum. W. REINHARD. *Deutsche Ztschr. f. Chir.*, 1922, clxviii, 319. [285]

A case of mesenteric vascular occlusion. J. CARRERÀ. *Arch. d. Hosp. Municipal de la Habana*, 1922, i, 69.

Duodenal diverticulum with ulcer on the opposite wall: report of a case. W. M. JONES. *J. Am. M. Ass.*, 1922, lxxviii, 1706.

Three cases of duodenal diverticula. J. GUTIÉRREZ. *Semana méd.*, 1922, xxix, 309. [285]

After-care, course, and complications in duodenal and gastric ulcer. C. H. PECK. *Am. J. Surg.*, 1922, xxxvi, 130.

Acute inflammation of a large diverticulum of the jejunum with perforation. G. W. CHRISTIE. *Brit. M. J.*, 1922, i, 990. [285]

Ileo-ileal invagination due to a diffuse lymphosarcoma of the small intestine with symptoms of acute occlusion. O. CARLO. *Riforma med.*, 1922, xxxviii, 581.

The origin of peptic jejunal ulcer following the von Eiselsberg-Doyen exclusion of the pylorus. J. GALPERN. *Zentralbl. f. Chir.*, 1922, xlix, 519.

Acute perforated Meckel's diverticulum. R. E. WALSH. *Med. Times*, 1922, i, 153. [286]

Multiple fibromata of the ileum causing recurrent double intussusception. W. E. LEE. *Ann. Surg.*, 1922, lxxv, 738.

Non-rotation of the large intestine. C. EGGERS. *Ann. Surg.*, 1922, lxxv, 757.

The sins and sorrows of the colon. A. F. HIRST. *Brit. M. J.*, 1922, i, 941.

A physiological explanation of pain due to functional disturbance of the muscles of the colon. F. S. WILSON. *Brit. M. J.*, 1922, I, 844.

Pneumatic rupture of the intestine. H. SCHWARTZ. *J. Am. M. Ass.*, 1922, LVIII, 1862.

Intestinal obstruction. H. W. RHOES. *Canadian M. Ass. J.*, 1922, 26, 306.

Spasms, ptosis and intestinal obstruction. P. PACCHINI. *Pubb. R. Univ. Roma*, 1922, LXV, 201.

Surgical complications of anastomosis and postoperative accidents. C. LIEFVER and BAILLAT. *Prose méd.*, PAR., 1922, 22, 312. [286]

The incurable colon corrected by mediated irrigation. O. B. SULLIVAN. *Internat. J. Surg.*, 1922, XXIV, 308.

Malignancies of the colon. J. F. EMMANN and R. F. CARTER. *N. York M. J.*, 1922, 22, 642.

Surgical treatment of cancer of the large intestine. G. W. CRILE. *Pennsylvania M. J.*, 1922, 22, 577. [286]

The surgical treatment of perforated ulcerous typhilitis. G. NYST. *Rassegna Internat. di Clin. e terap.*, 1922, 11, 125.

Perforating ulcers of the caecum. G. K. DICKINSON. *J. Am. M. Ass.*, 1922, LXXVIII, 1792.

Abnormal position of the appendix. M. BATTAGLIA. *Ann. Ital. di Chir.*, 1922, I, 272.

The occasional invagination of the appendix in gynecological operations. A. H. HOLMANN. *Zentralbl. f. Chir.*, 1922, 22, 123.

Pseudo-appendicitis in grippe. J. DUBS. *Schweiz. med. Wchnsch.*, 1922, 22, 101.

The geographic distribution and epidemiological significance of appendicitis. H. DIERICH. *München med. Wchnsch.*, 1922, 12, 426.

The importance of the constitutional factor in the etiology of appendicitis. W. BACKMAN. *Zschr. f. klin. Med.*, 1922, 22, 337.

Chronic appendicitis and viscero-sensory reflexes. F. C. ARBAGAST. *Rev. Ass. méd. argent.*, 1922, XXIV, 63.

The symptom pain in the diagnosis of appendicitis. P. A. D'ACQUARO. *N. York M. J.*, 1922, 22, 663.

The associate pathology of appendicitis. F. D. MOORE. *Illinois M. J.*, 1922, 11, 431.

Appendicitis and Sudebnik's line of resistance. R. V. SERRA. *Bull. Porto Rico M. Ass.*, 1922, 22, 73.

Some cases of hernial appendicitis. A. MILANI. *Arch. Ital. di Chir.*, 1922, 2, 479.

Knabbing remarks in re appendicitis. S. MCGUIRE. *Virginia M. Month.*, 1922, 11, 173.

The causes of failure of operations for chronic appendicitis. C. J. FOWLER. *Minnesota Med.*, 1922, 2, 143.

Volvulus of the sigmoid. G. L. HAYS. *Ann. Surg.*, 1922, 22, 126. [286]

Two rare forms of carcinoma of the sigmoid colon and the rectum. E. WERTHEIMER. *Med. Klin.*, 1922, 22, 455. [287]

Symptomatology of rectal diseases. W. L. MOSEY. *Kentucky M. J.*, 1922, 22, 208.

A résumé of partial rectal prolapse with a suggestion as to treatment. W. A. FANLER. *Minnesota Med.*, 1922, 2, 172.

Some points in the diagnosis of carcinoma of the rectum. A. A. LANDMAN. *N. York M. J. & Med. Rec.*, 1922, 22, 738.

A case of megarectum. F. S. RAMOS. *Rev. de med. y cir. de la Habana*, 1922, XXVII, 249.

Rectal stenosis. G. E. ARISTEGUI. *Arch. d. Hosp. Municipal de la Habana*, 1922, I, 72.

Dangers of operations for rectal stricture. C. J. DRUCK. *N. York M. J. & Med. Rec.*, 1922, 22, 737.

A foreign body in the rectum. J. H. BALDWIN. *Ann. Surg.*, 1922, LXXV, 741.

The treatment of rectal injuries after irradiation. W. KRUSE. *Zentralbl. f. Gynæk.*, 1922, 22, 376.

The treatment of internal hemorrhoids by injection. A. S. MOWLEY. *Proctologist*, 1922, 22, 400.

Deep abscesses about the anus. C. J. DRUCK. *Internat. J. Surg.*, 1922, XXIV, 202.

Liver, Gall-Bladder, Pancreas, and Spleen

A case of portal cirrhosis in a child, with operation (Talma-Morrison). M. B. KAY. *J. Michigan State M. Soc.*, 1922, 22, 244.

Primary gas-bacillus infection of the liver following a shrapnel wound. A. M. MARX. *Med. Klin.*, 1922, 22, 484.

Abscesses of the liver due to ascaris lumbricoides. E. MARAL. *Deutsche Zschr. f. Chir.*, 1922, 22, 297.

Cancer of the liver, a case report. J. G. SHERRILL. *Internat. J. Surg.*, 1922, XXIV, 190.

Operative injury of the hepatic and common bile ducts: methods of avoidance and repair. H. K. BONN. *J. Indian M. Ass.*, 1922, 22, 192.

The duodenal tube in the diagnosis and treatment of biliary diseases. J. MEAKINS. *Brit. M. J.*, 1922, I, 283.

The clinical study of the biliary secretions obtained by non-surgical drainage. G. W. MCCASKEY. *N. York M. J. & Med. Rec.*, 1922, 22, 747.

Barium meal study in gall-bladder diagnosis. L. KALLIN. *Northwest Med.*, 1922, 22, 172.

The diagnostic and therapeutic value of Lyon's method of non-surgical biliary drainage. M. J. SYNNOFT. *Am. J. Surg.*, 1922, 22, 156.

A pulmonary sign in acute infections of the biliary tract. D. P. D. WILKIE. *Brit. M. J.*, 1922, I, 208.

Congenital aplasia of the gall-bladder. T. NAEDEL. *Arch. f. path. Anat.*, 1922, CCXXXIII, 170.

Hydrops of the gall-bladder. J. H. BALDWIN. *Ann. Surg.*, 1922, 22, 741.

Cholecystitis, its influence on upper abdominal pathology. B. B. DAVIS. *Illinois M. J.*, 1922, 22, 117.

The differential diagnosis between cholelithiasis and duodenal ulcer. W. J. MCKLAND. *Lancet*, 1922, 22, 1096.

Gall-stone colic: its cause and treatment. H. HALPERT. *N. York M. J. & Med. Rec.*, 1922, 22, 753.

What surgery offers in gall-bladder disease. J. B. DEEVER. *Nebraska State M. J.*, 1922, 22, 182.

A modification of the operation of cholecystenterostomy. A. FULLERTON. *Brit. M. J.*, 1922, I, 225. [287]

Cholecystectomy—its failure to give relief in certain cases of cholelithiasis. P. P. M. JORGENSEN. *Wisconsin M. J.*, 1922, 22, 11.

The end results of cholecystectomy based on 100 cases. H. HARTMANN and D. PRITTY-DUTAILLIS. *Bull. Acad. de méd., PAR.*, 1922, LXXXVI, 481. [287]

The pancreas in surgery (editorial). F. B. LUND. *Surg., Gynec. & Obst.*, 1922, XXIV, 820.

The diagnosis of acute hemorrhagic pancreatitis. C. PRESTON. *Semana méd.*, 1922, 22, 829.

Pancreatitis following mumps: report of a case with operation. L. W. FARNAM. *Am. J. M. Sc.*, 1922, 22, 839. [288]

Hydatid cysts of the pancreas. M. ALDO. *Surg., Gynec. & Obst.*, 1922, XXIV, 739. [288]

A benign pancreatic tumor. E. HEYMANN. *Deutsche med. Wchnsch.*, 1922, 22, 484.

The indications for splenectomy. P. MORAWIEZ. *Klin. Wchnsch.*, 1922, I, 760.

Miscellaneous

- A foreign body in the abdomen. C. F. MITCHELL. *Ann. Surg.*, 1922, lxxv, 727.
- Aspects of surgical affections of right upper quadrant. C. G. HYDE. *J. Med. Soc. N. Jersey*, 1922, xix, 151.
- Lesions of the mesentery. F. DEGRONCOLI. *Riforma med.*, 1922, xxxviii, 510.

- Two cases of retrograde torsion of the omentum. M. ROSENÁK. *Gyógyászat*, 1922, 40.
- Fibrosarcoma of the omentum with a febrile course. A. SEIGERS. *Semana méd.*, 1922, xxix, 1069.
- Malignant islema in a laparotomy case. G. DUFTMANN. *München. med. Wchnschr.*, 1922, lxix, 471.
- The excretion of water in abdominal diseases. GUNDERMANN. *Zentralbl. f. Chir.*, 1921, xlviii, 1872.

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Factors concerned in the calcification of bone. J. HOWLAND and B. KRAMER. *Arch. Pediat.*, 1922, xxxix, 400.
- The significance of clinical, radiographic, and chemical changes in the early diagnosis of rickets. A. F. HESS. *Arch. Pediat.*, 1922, xxxix, 400.
- Hypofunction of the adrenal glands and rachitis. A. C. MANAHLIA. *J. Lancet*, 1922, n.s. xlii, 301.
- Infectious periostitis (the problem of rheumatic periostitis). H. REH. *Deutsche Ztschr. f. Chir.*, 1922, clxix, 361.
- A case of bone cyst. L. BACCARINI. *Arch. ital. di chir.*, 1922, v, 133. [290]
- Osteitis fibrosa cystica: a pathologic consideration. V. H. MASON. *J. Indiana M. Ass.*, 1922, xv, 185. [290]
- Ischemic myositis (Volkmann's contracture). B. A. WASHBURN. *Am. J. Surg.*, 1922, xxxvi, 147.
- Osteomyelitis. C. C. ALLEN. *Minnesota Med.*, 1922, v, 359.
- Acute primary osteomyelitis with rare localization. W. VAN DER LINDEN. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 396.
- The early diagnosis of acute osteomyelitis of infancy. M. SERSINI. *Semana méd.*, 1922, xxix, 1069.
- Dakin's solution in the treatment of osteomyelitis. A. O. WILENSKY. *Ann. Surg.*, 1922, lxxv, 708. 9
- Recognition of congenital syphilitic inflammation of the long bones. H. M. TIERHILL. *Lancet*, 1922, ccii, 1230.
- Osteitis tuberculosa multiplex cystica (Juengling): demonstration of a case. HOSEMANN. *Zentralbl. f. Chir.*, 1922, xlviii, 1872.
- The treatment of surgical tuberculosis in the Frankfurt surgical clinic. M. FLEISCH-THIESEN. *Strahlentherapie*, 1922, xii, 268.
- A method of treating tuberculosis of the bones and joints in the public health resort at Grimmenstein. S. ROMICH. *Med. Klin.*, 1922, xviii, 230.
- Multiple cartilaginous exostoses and enchondromata. M. METTENLEITER. *Deutsche Ztschr. f. Chir.*, 1922, clxix, 133.
- Primary multiple tumor formations of the bone marrow. H. HIRSCHFELD. *Folia hematol.*, 1922, xxvii, 97.
- Sarcoma of the long bones. J. W. GIBBON. *Virginia M. Month.*, 1922, xlix, 142.
- Arthritis deformans. C. W. BUCKLEY. *Practitioner*, 1922, cviii, 412.
- Rheumatoid arthritis and its practical treatment. I. DORRANCE. *Med. Press*, 1922, n.s. cviii, 359.
- Tuberculosis of the elbow cured by the X ray. G. M. DORRANCE. *Ann. Surg.*, 1922, lxxv, 744.
- Traumatic osteitis of the wrist. M. H. ROGERS. *Boston M. & S. J.*, 1922, clxxxvi, 730.
- Avulsion of the palm. G. M. DORRANCE. *Ann. Surg.*, 1922, lxxv, 744.
- Anomalies of the large abductor and short extensor of the thumb. SÁNCHEZ and RODAS. *Rev. de med. y cirug. de la Habana*, 1922, xxviii, 370.

- Two cases of deformity of the hip. R. C. ELSLIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 47.
- Congenital absence of the femur. J. GARRIDO LESTACHE. *Pediatría españ.*, 1922, xi, 13.
- A case of osteochondritis of the head of the femur. E. L. EVANS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 47.
- Coxa plana or osteochondritis of the superior epiphysis of the femur. J. CALVÉ. *Arch. franco-belges de chir.*, 1922, xxv, 592.
- A case of osteochondritis of the hip. DELCHEF. *Arch. franco-belges de chir.*, 1922, xxv, 669.
- Considerations on coxa plana, an infantile and juvenile disease. E. DELCROIX. *Arch. franco-belges de chir.*, 1922, xxv, 659.
- Infantile deforming osteochondritis of the upper femoral epiphysis. M. E. SORREL. *Arch. franco-belges de chir.*, 1922, xxv, 625.
- Adult osteochondritis of the hip. L. TAVERNIER. *Arch. franco-belges de chir.*, 1922, xxv, 614.
- Deformities of the hip with subluxation. M. VAN NECK. *Arch. franco-belges de chir.*, 1922, xxv, 656.
- Hypertrophic deforming osteochondritis of the upper end of the femur due to exostoses of growth. P. GUIBAL. *Arch. franco-belges de chir.*, 1922, xxv, 644.
- Flattening of the upper epiphysis of the femur. A. LEGG. *Arch. franco-belges de chir.*, 1922, xxv, 585.
- Atypical characteristics of coxa plana. J. MOREAU. *Arch. franco-belges de chir.*, 1922, xxv, 652.
- Coxa plana, osteochondritis deformans, or Calvé-Legg disease. G. ROTTENSTEIN. *Arch. franco-belges de chir.*, 1922, xxv, 633.
- The origin and outcome of coxa plana. H. WALDENSTROM. *Arch. franco-belges de chir.*, 1922, xxv, 599.
- Osteochondritis of the hip and its relation to other forms of infantile osteo-arthritis. G. NOVÉ-JOSSERAND. *Arch. franco-belges de chir.*, 1922, xxv, 606.
- The treatment of chronic synovitis of the knee joint. G. G. ATKINS. *Brit. M. J.*, 1922, i, 948.
- Rupture of the internal meniscus of the knee. R. FINOCCHIETTO. *Semana méd.*, 1922, xxix, 912.
- Rupture and luxation of the internal meniscus of the knee. A. GALLO. *Semana méd.*, 1922, xxix, 912.
- The hopping knee and the snapping knee. K. GAUGELE. *Ztschr. f. orthop. Chir.*, 1921, xlii, 180. [290]
- Fixation of foreign bodies of the knee. R. R. VILLEGAS. *Semana méd.*, 1922, xxix, 921.
- A case of multiple loose bodies in the knee joint. W. R. BRISTOW. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 48.
- Postural subsartorial bursitis. R. DAVIES-COLLEY. *Lancet*, 1922, ccii, 1906.
- Tennis leg. H. KUETNER. *Deutsche med. Wchnschr.*, 1922, xlviii, 412. [291]
- The occurrence and significance of the os tibiale externum in foot pains during adolescence. S. PELTSHIN. *Klin. Wchnschr.*, 1922, i, 783.

Apoplysis of the tibia. P. B. RICH. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 49.

A case of rebellious pyogenic arthritis of mechanical origin. A. PUERTA. *Med. (Buen.)*, 1922, xvi, 349.

Foot faults—their cause and treatment. R. B. COFIELD. *Tribunal Nurse*, 1922, lxvii, 202.

The cure of the foot during childhood. J. GRIFFMAN. *Nation's Health*, 1922, iv, 328.

A peculiar disease of the metatarsus. K. VOGL. *Zentralbl. f. Chir.*, 1922, xlii, 284.

The etiology of Kauler's disease: a change in the second metatarsophalangeal joint. W. BAUMANN. *Deutsch. med. Wchnschr.*, 1922, xlviii, 218. [291]

Fractures and Dislocations

Treatment as applied on the fracture service of a city hospital. W. B. CARROLL. *South. M. J.*, 1922, xv, 479.
Including fractures with metal strips. A. LAMBOTTE. *Presse med., Par.*, 1922, xxx, 126. [291]

A good method of treating selected fractures of long bones. W. B. OWEN. *South. M. J.*, 1922, xv, 470.

Capsulorraphy for persistent subglenoid dislocation of the shoulder. D. STETTER. *Ann. Surg.*, 1922, lxxv, 725.

Fracture of the surgical neck of the humerus. H. DE COCKA. *Rev. Assoc. med. argent.*, 1922, xxxv, 81.

A new splint for fractures of the forearm. H. A. MC KNIGHT. *Surg., Gynec. & Obst.*, 1922, xxix, 808.

The curative results in fractures of the lower end of the radius in 141 cases. L. CONTI. *Schweiz. med. Wchnschr.*, 1922, lv, 359.

Disarticulation of the hip. J. K. YOUNG. *Ann. Surg.*, 1922, lxxv, 126.

A case of femur fracture in a new-born infant. A. M. AMERLAND. *Pediatric opac.*, 1922, xl, 113.

Fracture of the humeral neck, softoma in the popliteal space: case reports. B. OWEN. *Kentucky M. J.*, 1922, xx, 184.

Operative treatment of certain fractures: femur, humerus, scapula. E. W. RYERSON. *South. M. J.*, 1922, xv, 473.

Multiple fractures in the same limb. A. INSULAN. *Arch. d. Hosp. Municipal de la Habana*, 1922, l, 97.

A case of recurrent subluxation of both knee joints (snapping knees) in a baby. H. A. T. FAIRBANK. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 48.

A case of dislocation of the patella and contraction of the knee. H. T. GRAY. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Orthop., 48.

Spiral fracture of the leg. J. A. CALDWELL. *Ann. Surg.*, 1922, lxxv, 717.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

New methods for the treatment of traumatic injuries. P. ERWALD. *München. med. Wchnschr.*, 1922, lxxv, 472.

The Paraventricular plastic method in extensive tendon defects. P. CINGOLANI. *Ann. Ital. di chir.*, 1922, l, 146.

The operative removal of extra-articular tuberculous bone foci. K. VOGL. *Ztschr. f. orthop. Chir.*, 1922, xlii, 246.

Arthrodesis in tuberculous of the joints by para-articular implantation of a wedge of bone. M. KAPPEL. *Deutsche Ztschr. f. Chir.*, 1922, clxix, 316. [292]

Some points in the technique of bone grafting, with special reference to bridge grafts. C. M. PAGE and G. PERKINS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Surg., 48.

Total removal of the scapula for primary giant cell sarcoma. B. B. DAVIS. *Surg., Gynec. & Obst.*, 1922, xxxv, 726. [292]

Lasting results following tendon transposition in irreparable paralysis of the radial nerve. W. KRAUSE. *Zentralbl. f. Chir.*, 1922, xlviii, 1680.

Further observations on Sauerbruch amputation stumps. C. TES HORN. *Deutsche Ztschr. f. Chir.*, 1922, clxix, 185.

Surgery of injuries of the meniscus of the knee joint. F. STEINMANN. *Schweiz. Rundschau f. Med.*, 1922, xxi, 133.

Ankylosis of both knees due to Poncet's rheumatism; unilateral arthroplasty. C. L. ALLENDE. *Rev. Assoc. med. argent.*, 1922, xxxv, 73.

The treatment of ankylosis of the knee in the flexed position. O. STRACKER. *Zentralbl. f. Chir.*, 1922, xlvix, 209.

Mobilization of the knee joint. L. ROBERT. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 36.

Longitudinal section of the patella for a joint mouse impacted in the intercondylar notch. STETTER. *Ann. Surg.*, 1922, lxxv, 750.

Bone transplantation for tibial cyst. J. K. YOUNG. *Ann. Surg.*, 1922, lxxv, 736.

SURGERY OF THE SPINAL COLUMN AND CORD

The pathological anatomy and clinical aspects of spina blada resecta based on the autopsy findings in the new-born. J. VAN FURCK. *Ztschr. f. orthop. Chir.*, 1922, xlii, 65. [293]

Congenital anatomical defects of the spine and ribs. J. W. SEYER. *Boston M. & S. J.*, 1922, clxxvi, 799.

Spondylitis. H. QUINCE. *Mitt. a. d. Grenzgeb. d. Med. u. Chir.*, 1922, xxxv, 714.

Chronic inflammation of the vertebra and its treatment. F. HARR. *Fortschr. d. Med.*, 1922, xl, 218.

The treatment of tuberculous spondylitis. DEBRUNNER. *Fortschr. d. Med.*, 1922, xl, 85.

The pathology and evolution of congenital scoliosis. A. MOUTRIET and C. ROEDERER. *Presse med., Par.*, 1922, xxx, 577.

Costal grafts in Pott's disease. A. GUTTIEREZ. *Semana med.*, 1922, xxix, 1079.

The treatment of fractures of the vertebral column and dorsal and lumbar Pott's disease. G. ZORRAGGIN. *Semana med.*, 1922, xxix, 1049.

Glioma of the lumbar cord: case report. D. S. ADAMS. *Boston M. & S. J.*, 1922, clxxvi, 738.

SURGERY OF THE NERVOUS SYSTEM

The direct stimulation of peripheral nerves: rules for procedure in the operating room. H. O. FLESS. *Surg., Gynec. & Obst.*, 1922, xxxv, 812. [293]

The present status of the neuroma problem. R. SOMMER. *Beitr. z. klin. Chir.*, 1922, cxv, 694. [294]

Sacral chondroma. R. MICOTTI. *Policlin., Rome*, 1922, xxix, sec. chir., 265. [294]

The sympathetic nervous system and its surgical treatment. A. WOJCIEHOWSKI. *Gaz. lek.*, 1922, lv, 148. [295]

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

- Traumatic orbito-facial emphysema. G. G. DAVIS. *Surg., Gynec. & Obst.*, 1922, xxxv, 761. [295]
- Surgical complications of scurvy. A. GOLJANITZKI. *Wratschbaevje Djeło*, 1921, iii, 146.
- Extra-genital chorio-epitheliomata of congenital origin. J. MILLER and F. J. BROWNE. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 48. [295]
- What every doctor should know about cancer. J. C. BLOOMSBOM. *Texas State J. M.*, 1922, xviii, 77.
- Statistics on carcinoma. L. SEITZ. *Zentralbl. f. Gynaek.*, 1922, xlv, 359.
- Cancer proved hereditary. T. J. ALLEN. *Med. Summary*, 1922, xlv, 89.
- On the relation of premature birth to cancer. C. W. ROHMER. *Med. Times*, 1922, i, 154.
- Natural and spontaneous treatment of carcinoma. D. B. ROSECALL. *Ann. ital. di chir.*, 1922, i, 121.
- The medical side of the cancer problem. A. C. SCOTT. *Texas State J. M.*, 1922, xviii, 81.
- Two cases of congenital sarcoma in the new-born. R. LEY. *Bruxelles méd.*, 1922, ii, 377.
- Further investigations into the etiology of malignant disease and leukemia: including an account of lymphoma and lymphosarcoma experimentally produced in the mouse. J. YOUNG. *Edinburgh M. J.*, 1922, xxviii, 233.
- Granuloma inguinale. A. RANDALL, J. C. SMALL, and W. P. BELK. *Surg., Gynec. & Obst.*, 1922, xxxiv, 717.
- Interesting course of a needle as a foreign body. P. A. NIXON. *J. Lancet*, 1922, n.s. xlii, 316.
- Modern ideas respecting acidity and alkalinity. F. W. GAMBLE and N. EVERS. *Lancet*, 1922, ccii, 1076.

Sera, Vaccines, and Ferments

- Comparison between homœopathic treatment and the mechanism of the infectious process, immunity, vaccine, and serum therapy. C. A. WILLIAMS. *Hahneman. Month.*, 1922, lvii, 340.

Blood

- The use of open delivery tubes in the distillations when determining urea and non-protein nitrogen in blood. G. E. YOUNGBURG. *J. Lab. & Clin. Med.*, 1922, vii, 552.
- Suggestions for the determination of uric acid in the blood. L. BAUMAN and L. M. KEELER. *J. Lab. & Clin. Med.*, 1922, vii, 551.
- The icterus index of the blood serum. H. P. MAUE. *Surg., Gynec. & Obst.*, 1922, xxxiv, 752.
- The close relationship of the erythrocytic and leukocytic functions of the bone marrow in disease: report of a case of erythremia; the roentgen-ray treatment of erythremia. E. P. PENDERGRASS and H. K. PANDOST. *Am. J. M. Sc.*, 1922, clxiii, 797.
- Types of severe anemia—with especial reference to secondary hypoplastic anemia. A. STENGEL. *J. Iowa State M. Soc.*, 1922, xii, 208.
- Idiopathic aplastic anemia; report of a case in a child 4 years old, marked improvement from transfusion. C. HERMAN. *Am. J. Dis. Child.*, 1922, xxiii, 484.
- Pernicious anemia as studied through a remission—a case report. W. GREIG, JR., and W. S. DENNIS. *Colorado Med.*, 1922, xix, 125.

- Pernicious anemia: a study of 127 cases. F. J. ROHNER. *J. Iowa State M. Soc.*, 1922, xii, 216.
- A case of leukemia. M. T. VALLINO and F. BAZAN. *Semana méd.*, 1922, xxix, 1069.
- A case of slow hemorrhage eighty days after an accident. H. E. SCHILLING. *Cincinnati J. M.*, 1922, iii, 156.
- The three-syringe method of transfusing citrated blood. H. M. BERAUD. *Presse méd., Par.*, 1922, xxx, 308.

Blood and Lymph Vessels

- The diagnosis and treatment of injury to the blood vessels and false aneurisms. N. N. PETROFF. *Kubanskij Nauchno-Med. Vestnik.*, 1921, 18.
- Arteriosclerosis: its pathology and pathogenesis. J. MILLER. *Canadian Pract.*, 1922, xlvii, 254.
- Asystole due to arteriovenous aneurisms and its surgical treatment. R. GRÉGOIRE. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 530. [296]
- Arterial and venous aneurism of the internal carotid and the sinus cavernosus. G. PASCALE. *Ann. ital. di chir.*, 1922, i, 144.
- Extracranial aneurism of the internal carotid artery. N. WINSLOW. *Ann. Surg.*, 1922, lxxv, 688. [296]
- An unusual gunshot wound of the inferior vena cava. W. M. SHEPPE. *J. Am. M. Ass.*, 1922, lxxviii, 1890.
- A case of ligation of the subclavian artery. O. J. CAMES. *Rev. méd. d. Rosario*, 1922, xli, 98.
- Arteriovenous aneurism of the femoral vessels: excision. E. STINGER. *Rev. de med. y cirug. de la Habana*, 1922, xxvii, 311.
- A wound of the femoral artery and vein. G. P. LA ROQUE. *Ann. Surg.*, 1922, lxxv, 705. [297]
- The treatment of chronic malign diseases of lymph glands. J. L. YATES. *Surg., Gynec. & Obst.*, 1922, xxxiv, 823.
- Elephantiasis treated by the Kondoleon operation. F. P. HERFF. *Surg., Gynec. & Obst.*, 1922, xxxiv, 758. [297]

General Bacterial Infections

- A case of wound diphtheria. B. L. ARMS and P. GRIFFITH. *J. Am. M. Ass.*, 1922, lxxviii, 1890.
- Anthrax septicæmia. D. SYMMERS. *Ann. Surg.*, 1922, lxxv, 663.

Surgical Diagnosis, Pathology, and Therapeutics

- The co-operative relation between the specialist and the general practitioner. J. L. HOFFMAN. *J. Lancet*, 1922, n.s. xlii, 311.
- The comprehensive medical examination. J. W. SHUMAN. *J. Lancet*, 1922, n.s. xlii, 313.
- Bullet wounds: their interpretation. E. M. VAUGHAN. *J. Am. M. Ass.*, 1922, lxxviii, 1801. [297]
- Some points in physical diagnosis. D. RIESMAN. *J. Am. M. Ass.*, 1922, lxxviii, 1962.
- Clinical symptoms of cerebellar disease and their interpretation. G. HOLMES. *Lancet*, 1922, ccii, 1231.
- The differential diagnosis between cerebral hemorrhage and diabetic coma. E. D. SPACKMAN. *Brit. M. J.*, 1922, i, 918.
- Cytology of the cerebrospinal fluid. J. H. WHITCRAFT. *Pennsylvania M. J.*, 1922, xxv, 606.
- An adapted mask for the basal metabolism apparatus. P. B. NEWCOMB. *J. Lab. & Clin. Med.*, 1922, vii, 560.

Correlation of the basal metabolic rate with the pulse rate and pulse pressure. J. M. REAN. *J. Am. M. Ass.*, 1933, LVIII, 1593.

Aids to the basal metabolic rate determination. H. S. NEWMAN. *Arch. Int. Med.*, 1933, LXIII, 148.

The apical cone of a discharge from the nipple in breast lesions. E. O. LAMON. *Lancet*, 1933, CVII, 1931.

The interpretation of gastric symptoms. A. A. GOLD SMITH. *Illness M. J.*, 1933, 35, 441.

Hypertrophy of the skin and subcutaneous tissue as a factor in the diagnosis of lesions of the abdominal viscera. G. F. THOMPSON. *Wisconsin M. J.*, 1933, 33, 14.

Abdominal pain and its value in the differential diagnosis of diseases of the abdomen. F. KRIEGER. *Klin. Wochenschr.*, 1933, 11, 173.

Acute appendicitis—acute salpingitis—acute pyelitis—differential diagnosis. F. D. WORTHINGTON. *Virginia M. Month.*, 1933, VII, 138.

The recognition and treatment of minor ailments of the digestive system. M. FENHORN. *N. York M. J. & Med. Rec.*, 1933, CIV, 381.

Diathermy in surgical practice. W. H. CLAYTON. *Gen. Pract.*, 1933, VII, 1197.

The treatment of the female breast with diathermy. A. SIEG and E. VAY. *Zentralbl. f. Gynæk.*, 1933, 31, 1143.

Experimental Surgery and Surgical Anatomy

A guide to topographical anatomy and its application. G. CHURCH. *Berlin: Karger*, 1932.

Experimental reconstruction of the oesophagus by granulation tubes. H. NEUBER and J. M. ZIGLER. *Surg., Gynec. & Obst.*, 1933, XXXIV, 797. [298]

Experiments on the value of each of the gastric arteries in the nutrition of the stomach. L. TORRECA. *Ann. Ital. di Chir.*, 1933, I, 314.

A study of experimental pyloroplasty. G. H. MILLER, H. H. BROWN, and L. L. STAPP. *Surg., Gynec. & Obst.*, 1933, XXXIV, 763. [299]

The lymphatics and lymph glands: their rôle in the absorption of foreign particles and tubercle bacilli. P. T. HERRING and F. G. MACNAUGHTON. *Lancet*, 1933, CVII, 1091.

Roentgenology and Radium Therapy

The X-ray and the general practitioner. CARPENTER. *Am. J. Clin. Med.*, 1933, XVII, 405.

Radiotherapy and physics. G. W. C. KAYE. *Proc. Roy. Soc. Med., Lond.*, 1933, 26, Sect. Electro-Therap., 11.

The present status of radiation therapy. D. V. KEITH. *Rontgen M. J.*, 1933, 11, 411.

A new apparatus. C. M. MING. *Am. J. Roentgenol.*, 1933, 18, 126.

A simple past box. C. B. REED. *Am. J. Roentgenol.*, 1933, 18, 130.

Standardization of dosage factors. H. J. ULMANN. *J. Radiol.*, 1933, 24, 139.

Standardization of the measurement of tube potential. F. RIEGER. *Am. J. Roentgenol.*, 1933, 18, 431.

Fundamental biological principles underlying radiotherapy. N. J. NAMA. *J. Lancet*, 1933, 111, 328.

High-tension electric shocks in roentgenological practice. W. F. HERRER. *Am. J. Roentgenol.*, 1933, 18, 164.

The X-ray in dermatology. C. A. SIMMONS. *Virginia M. Month.*, 1933, VII, 113.

Roentgen-angiography as a surgical diagnostic aid. R. FRIEDMAN. *Deutsche Ztschr. f. Chir.*, 1933, 131, 399.

Roentgen-ray anthropometry of the skull. A. J. PACENT. *J. Radiol.*, 1933, 24, 136.

A method for the roentgen-ray demonstration of the nasolacrimal passageways. D. M. CAMPBELL, J. M. CARTER, and H. P. DODD. *Am. J. Roentgenol.*, 1933, 18, 187.

A study of rickets, with a review of recent literature. R. G. GILLES. *Am. J. Roentgenol.*, 1933, 18, 326.

The effect of roentgen rays on rachitis: a further contribution to the radiotherapy of rachitis. K. HILF. *Schweiz. Ztschr. f. orthop. Chir.*, 1933, 31, 146.

Roentgen-ray treatment of Basedow's disease. M. HAUSER and A. REIDER. *Klin. Wochenschr.*, 1933, 11, 271.

The X-ray examination (symposium on tuberculosis). H. M. TOYELL. *Canadian M. Ass. J.*, 1933, 30, 402.

A study of hilus pneumoniae by serial radiographic examination. L. R. SARTT. *J. Radiol.*, 1933, 24, 131.

Fluoroscopy in diseases of the abdominal organs. A. L. HOLLAND. *N. York M. J.*, 1933, CIV, 659.

Failures after gastro-enterostomy turned to success by the knowledge furnished by X-ray examination. A. H. PIER. *Am. J. Roentgenol.*, 1933, 18, 338.

Duodenal bulb deformity in relation to symptoms and the chemistry of the gastric juice. A. W. CRANE. *J. Radiol.*, 1933, 24, 218.

The manifestations of pancreatic diseases in the roentgenogram. G. HERRHEIMER. *Med. Klin.*, 1933, XVIII, 233.

Pneumoperitoneum in kidney diagnosis with special reference to the detection of retroperitoneal masses. L. R. SARTT. *J. Urol.*, 1933, 30, 431.

Pyelitis of pregnancy. F. M. HODGES. *Am. J. Roentgenol.*, 1933, 18, 332.

Roentgen-ray localization of the intestinal tube. J. BUCKSTEIN. *N. York M. J. & Med. Rec.*, 1933, CIV, 669.

Radiological diagnosis of primary carcinoma of the ascending colon with metastasis to the jejunum. L. GLASSMAN. *N. York M. J.*, 1933, CIV, 686.

An unusual fracture of the tibia and fibula. E. SCOTT. *Arch. Radiol. & Electrotherapy*, 1933, XVIII, 26.

The radiotherapy of cancer. O. STRAUSS. *Semana méd.*, 1933, XXX, 1199.

Radiations in the treatment of cancer. R. KNOX. *Lancet*, 1933, CCII, 1131.

The mode of radiation upon carcinoma. J. EWING. *Am. J. Roentgenol.*, 1933, 18, 131.

The underlying principles in the radiotherapy of malignant tumors at the surgical clinic of Professor Schindler of the University of Frankfurt. H. HOLFELDER. *Am. J. Roentgenol.*, 1933, 18, 341.

The practical status of deep therapy with the advent of higher X-ray intensities. E. C. ERNST. *South. M. J.*, 1933, 36, 445.

European impressions and personal experience in the use of high voltage X-ray in deep-seated malignancy. R. H. MILLWEE. *South. M. J.*, 1933, 36, 441.

Observations on the use of the copper filter in the roentgen treatment of deep-seated malignancies. T. A. GROOVER, A. C. CHRISTIE, and E. A. MCERRITT. *South. M. J.*, 1933, 36, 449.

The clinical value of deep roentgenotherapy in the treatment of cancer. R. VAQUER. *Prog. de la clin.*, Madrid, 1933, 3, 231.

The present status of radium therapy. E. S. LAIS. *South. M. J.*, 1933, 36, 495.

An experience with radium. T. H. DREHER. *J. South Carolina M. Ass.*, 1933, XVIII, 133.

Industrial Surgery

Medical service in industry. C. E. FORD. *Ohio State M. J.*, 1933, XVIII, 412.

The treatment of wounds in industrial surgery. W. A. ROBINSON. *Med. Herald*, 1922, xli, 179.

Traumatic surgery as viewed from an industrial standpoint. W. O. SHERMAN. *Minnesota Med.*, 1922, v, 343.

Hospitals; Medical Education and History

The change in hospital finance. A. G. ANDERSON. *Lancet*, 1922, ccli, 1117.

The voluntary hospital: a retrospect and a prospect. W. T. THOMAS. *Lancet*, 1922, ccli, 1127.

Cinematography—its uses in teaching medicine and surgery—a prophecy in fulfillment. J. S. EDLIN. *Internat. J. Surg.*, 1922, xxv, 191.

Modern commentaries on Hippocrates. J. WRIGHT. *N. York M. J. & Med. Rec.*, 1922, cxv, 721.

F. Widal. M. W. THEWLIS. *N. York M. J. & Med. Rec.*, 1922, cxv, 699.

Legal Medicine

Malpractice suits as they relate to the medical profession. C. U. COLLINS. *Illinois M. J.*, 1922, xli, 422.

Reputation not deemed at stake—evidence and questions in sponge case. *Cochran et ux. vs. Gritman* (Idaho), 201 Pac. R., p. 289. [299]

Injury and pre-existing disease under Workmen's Compensation Act. *Springfield District Coal Mining Co. vs. Industrial Commission et al.* (Ill.), 133 N. E. R. p. 752. *Rockford Hotel Co. vs. Industrial Commission et al.* (Ill.), 132 N. E. R., p. 759. [300]

Liability of hospital for negligence of nurse in administering hypodermic. *Malcolm vs. Evangelical Lutheran Hospital Association* (Neb.), 185 N. W. R., p. 330. [300]

Overlapping of bones indicative of negligence. *Pelky vs. Kivlin* (N. Y.), 191 N. Y., Supp., p. 428. [301]

GYNECOLOGY

Uterus

A device for aseptic intra-uterine manipulations. F. C. HENDRICKSON. *Am. J. Obst. & Gynec.*, 1922, iii, 617.

Operation for genital prolapse. F. PACHNER. *Rozhledy v klin. a gynec.*, 1921, i, 245.

Premenopausal uterine prolapse. E. Z. WANOUS. *Minnesota Med.*, 1922, v, 362.

Acute inversion of the uterus—report of a case. S. C. SWANSON. *Cincinnati J. M.*, 1922, iii, 159.

Inverted uterus caused by a uterine polypus; vaginal hysterectomy; recovery. R. B. HALL. *Cincinnati J. M.*, 1922, iii, 163.

The stem pessary. A. F. SPURNEY and P. M. SPURNEY. *Ohio State M. J.*, 1922, xviii, 424.

Some operations on the round ligaments and their dangers. H. A. POWELL. *Med. J. Australia*, 1922, i, 623.

Uterine hemorrhage of endocrinopathic origin. S. H. ZEIST. *Surg., Gynec. & Obst.*, 1922, xxxiv, 790.

Radium treatment of hemorrhagic metritis. H. CHENET. *J. de chir.*, 1922, xix, 594.

Radium in the treatment of hemorrhagic hypertrophic metritis. M. LETULLE. *J. de chir.*, 1922, xix, 579.

Adhesions of the uterine cervix. V. MONTEVERDE. *Rev. argent. de obst. y ginec.*, 1922, vi, 170.

Hypertension and uterine fibromata. J. HEITZ. *Bull. Acad. de méd., Par.*, 1922, lxxvii, 422. [302]

A case of fibromyomatous uterus retaining a dead fetus for several months. M. PASTOR. *Policlinica*, 1921, viii, 640. [302]

Is operative treatment of myomata justified? R. T. VON JASCHKE. *Zschr. f. Geburtsh. u. Gynaek.*, 1921, lxxviii, 730.

Massive doses of deep roentgen-ray radiation in the treatment of fibromata and cancer of the uterus. C. CHAMBACHER and P. DESCOUST. *Presse méd., Par.*, 1922, xxx, 509.

Two myomectomies on gravid uteri. I. FIORAVANTI. *Policlin., Rome*, 1922, xxxix, sez. prat., 813.

The increasing inoperability of uterine cancer and its prevention. G. WINTER. *Zentralbl. f. Chir.*, 1921, xlv, 1713.

The operability of uterine cancer. R. HINRICHS. *Zentralbl. f. Gynaek.*, 1922, xlvii, 373. [302]

The treatment of cancer of the uterus with radium. L. FRANK. *South. M. J.*, 1922, xv, 489.

Carcinoma of the cervix uteri: a very early case. K. H. MARTZLOFF. *Bull. Johns Hopkins Hosp.*, 1922, xxxiii, 221.

Indications and technique of fundal hysterectomy with preservation of one ovary. P. LECÈNE and F. GAUDERT-D'ALLAINES. *J. de chir.*, 1922, xix, 561.

Adnexal and Peri-Uterine Conditions

Transuterine pneumoperitoneum. J. J. MUNDELL. *Virginia M. Month.*, 1922, xlix, 130.

A method of keeping fallopian tubes open. W. T. KENNEDY. *Am. J. Obst. & Gynec.*, 1922, iii, 607.

A preliminary report on the surgical prevention of sterility due to salpingitis. E. F. ZIEGELMAN. *Northwest Med.*, 1922, xxi, 168.

Transverse wedge excision of the fundus of the uterus preparatory to the bilateral extirpation of diseased adnexa. O. BUETTNER. *Arch. f. Gynaek.*, 1922, cxv, 461. [302]

The simulation of ectopic pregnancy. C. H. WATERS. *Nebraska State M. J.*, 1922, vii, 196.

Ectopic pregnancy followed by tubal abortion; expulsion of the foetal skeleton through the urethra. F. BOTIN. *Arch. de ginec., obst. y pediat.*, 1922, xxxv, 65. [303]

An unusual case of extra-uterine pregnancy. J. W. RILEY. *Am. J. Obst. & Gynec.*, 1922, iii, 630.

A case of extra-uterine tubal pregnancy with chronic gonococcal infection. G. VELO and S. LUSSANA. *Policlin., Rome*, 1922, xxxix, sez. prat., 813.

A case of extra-uterine pregnancy with living fetus at term operated upon during false labor pains with survival of the mother and child. E. ZARATE, D. A. ROJAS, and V. WIDAKOVICH. *Semana méd.*, 1922, xxxix, 453. [303]

The ovarian function. W. P. GRAVES. *Am. J. Obst. & Gynec.*, 1922, iii, 583.

Teratomata of the ovary. M. F. PORTER. *Am. J. Obst. & Gynec.*, 1922, iii, 600.

External Genitalia

Congenital malformation of the female genitalia. P. J. REEL. *Am. J. Obst. & Gynec.*, 1922, iii, 604.

Secondary perineal repair; description of a simple technique. T. H. CHERRY. *Surg., Gynec. & Obst.*, 1922, xxxiv, 303. [303]

A case of expulsion of a foreign body by a unique route. J. M. WHYTE. *Med. Press*, 1922, n.s. cxlii, 490.

Miscellaneous

- Physiology the basis of future gynecology. G. G. WARR, JR. *Am. J. Obst. & Gynec.*, 1922, 94, 371.
- On the relation of the thyroid gland to the female pelvic organs. C. M. WILSON and A. W. BOHNE. *Lancet*, 1922, 635, 1025.
- Some gynecological misdemeanors. A. CHALFANT. *J. Am. M. Ass.*, 1922, LXXVIII, 1075.
- The age of the menopause in Finland. H. R. MALMIO. *Acta Soc. Med. Fennica Duodecim*, 1922, 21, 2.
- Hernia of the female reproductive organs into the inguinal canal. H. P. BROWN. *Ann. Surg.*, 1922, LXX, 747.
- Sterility. S. FOSBROOK. *Practitioner*, 1922, LVIII, 143. [394]
- Sterility studies: preliminary report. H. HENDERSON and T. G. ARON. *J. Am. M. Ass.*, 1922, LXXVIII, 1797.
- Antiseptic dye treatment of gonorrhea in the female. R. JAMES. *Northwest Med.*, 1922, XII, 182.

- Quartz light therapy in pelvic inflammation. L. C. DOWDALL. *J. Michigan State M. Soc.*, 1922, XX, 124.
- Urethro-perineal urinary fistula. FERRONA. *J. d'urrol. méd. et chir.*, 1922, XII, 212. [394]
- Variolose of the broad ligament and its clinical significance. F. ENGELMANN. *Zentralbl. f. Gynæk.*, 1922, XLV, 120. [394]
- Spontaneous pelvic peritonization in the female based on 121 laparotomies and twelve autopsies. O. BRUTYER. *Rev. argent. de obst. y ginec.*, 1922, VI, 99.
- Pelvic hematocoele from causes other than ectopic pregnancy. J. W. BOYLE. *Am. J. Obst. & Gynec.*, 1922, 18, 621.
- Seven years' experience in the treatment of carcinoma of the female genital organs. H. KUPFERBERG. *Strahlentherapie*, 1922, XII, 88.
- The significance of bladder symptoms in women. E. STONE and J. McCANN. *Rhode Island M. J.*, 1922, v, 253.

OBSTETRICS

Pregnancy and Its Complications

- Free conditions in pregnancy. C. GRAEF. *Med. Times*, 1922, 1, 105.
- A pathognomonic sign of intra-uterine death. A. B. SWEATMAN. *Surg., Gynec. & Obst.*, 1922, XXXIV, 724.
- Some chemical observations on the toxemia of pregnancy. O. L. V. DE WIESELLO. *J. Obst. & Gynec. Brit. Emp.*, 1922, XXIX, 21. [395]
- Hypertension in pregnancy. L. LEVERICH. *Southwest J. M. & S.*, 1922, XXX, 2.
- Hypertensive gravidations. C. E. PADDOCK. *Surg., Gynec. & Obst.*, 1922, XXXIV, 513. [395]
- The treatment of hypertensive gravidarum by the fudonal salt. C. E. PADDOCK. *J. Am. M. Ass.*, 1922, LXXVIII, 1091. [395]
- Eclampsia: evolution as a causative factor. S. E. KARR. *Ind. M. J.*, 1922, I, 912.
- The conservative treatment of eclampsia. F. P. DAVIS. *Thorp, Ann.*, 1922, LVII, 281.
- Cesarean section in the treatment of eclampsia, with a report of one postmortem delivery. H. E. WHEELER. *Northwest Med.*, 1922, XII, 161.
- The treatment of cardiac failure during pregnancy. H. E. B. FARRER. *Am. J. Obst. & Gynec.*, 1922, 18, 620.
- The treatment of malaria in pregnant women and newly born children. S. B. NAGAR. *Practitioner*, 1922, LVIII, 441.
- Rheumatic fever complicating advanced pregnancy. E. B. HOFFERMAN. *Mod. J. Australia*, 1922, I, 608.
- Pylitis of pregnancy. W. G. SEXTON. *J. Urol.*, 1922, 16, 124.
- Chorioepithelioma. H. A. BLACK. *Colorado Med.*, 1922, 16, 123. [396]
- Hydatidiform mole and chorioepithelioma: a clinical and pathologic study. E. NOVAK. *J. Am. M. Ass.*, 1922, LXXVIII, 1771. [396]

Labor and Its Complications

- First, second, and third. A. H. WRIGHT. *Canadian M. Ass. J.*, 1922, 26, 383.
- Induction of labor by the use of castor oil and quinine. A report of 200 cases. A. C. WILKINSON. *Surg., Gynec. & Obst.*, 1922, XXXIV, 522.
- Conservative labor induction. H. BRIDGES. *Med. Press*, 1922, 93, 106, 126.

- A new hydrostatic bag for the induction of labor. G. H. LEE. *Am. J. Obst. & Gynec.*, 1922, 18, 628.
- The management of normal labor and the puerperium. A. M. SHWALTER. *Virginia M. Month.*, 1922, XLIX, 136.
- Painless labor. C. A. SMITH. *Northwest Med.*, 1922, XII, 189.
- The advantages and methods of making labor easy. I. PROCTOR. *Virginia M. Month.*, 1922, XLIX, 147.
- Difficulties of repeated births in malformed uteri. E. A. BOKRO. *Semana méd.*, 1922, XXIX, 1076.
- Slight pelvic stricture, rupture of the vagina, the cervix, and the lower portion of the uterus following the manipulations of a midwife; extraction of the fetus and hysterectomy, recovery. LEROY DES SARRIS. *Bull. Acad. de méd. Par.*, 1922, LXXVII, 455. [396]
- Median episiotomy. D. C. ELKIN. *J. Med. Ass. Georgia*, 1922, XI, 224.
- Cesarean section. S. J. CAMERON. *Brit. M. J.*, 1922, I, 911.
- Cesarean section. A. MacKINNON. *Canadian M. Ass. J.*, 1922, XII, 405.
- Cesarean section, with special reference to present-day indications for operation. C. J. G. TAYLOR. *Brit. M. J.*, 1922, I, 909.
- Cesarean delivery—report of cases. G. E. CANNON. *J. Arkansas M. Soc.*, 1922, XLX, 2.
- The newer methods of cesarean section. J. B. DE LEE. *Illinois M. J.*, 1922, XL, 341. [397]
- The transperitoneal cervical cesarean section: report of cases. L. E. PHANLUK and J. G. HEGARTY. *Boston M. & S. J.*, 1922, CLXXVI, 733.
- Comparative value of the different methods of abdominal cesarean section. E. A. BOKRO. *Semana méd.*, 1922, XXIX, 704.
- The abuse of cesarean section. R. L. DeNORMANDE. *N. York State J. M.*, 1922, XXII, 275.

Puerperium and Its Complications

- The puerperium from the standpoint of the neuropsychiatrist. C. E. RYAN. *Minnesota Med.*, 1922, v, 373.
- Puerperal eclampsia. J. KETCHAM. *J. Indian M. Ass.*, 1922, XV, 187.
- The treatment of puerperal eclampsia by massive blood letting and evacuation of the uterus. I. PENA and M. OXILLA. *Semana méd.*, 1922, XXIX, 986.

Puerperal sepsis. H. CHATTERJEE. Calcutta M. J., 1922, xvi, 475.

Puerperal sepsis. R. T. VAN METRE. Nebraska State M. J., 1922, vii, 201.

The relationship between puerperal septicaemia and other infectious diseases, with reference to the admission of maternity cases into isolation hospitals. E. D. BROWN, Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Epidem. and State Med., 40.

Present-day treatment of puerperal infection. E. A. BORDO. Semana méd., 1922, xxix, 977.

New-Born

A plea for rational obstetrics: report of two cases. J. E. JAMES, JR. Hahnemann Month., 1922, lvi, 331.

General icterus of the fetus. N. B. CAPON. J. Obst. & Gynec. Brit. Emp., 1922, xxix, 230.

A study of the shadows in the thorax of the newly born. L. R. DEBUYS and E. C. SANCHEZ. Arch. Pediat., 1922, xxxix, 412.

The biological relationship existing between the mother and the child after birth. HEIM. Fortsch. d. Med., 1922, xl, 87.

Miscellaneous

The organization of the care of maternity. F. IYENS. Lancet, 1922, ccli, 1227.

Maternity conditions in India. M. I. BALFOUR. Lancet, 1922, ccli, 1161.

Is conservative obstetrics to be abandoned? W. C. DANTON. Am. J. Obst. & Gynec., 1922, iii, 609.

Disturbances of the endocrine glands and their relation to obstetrics. A. P. RAMOS and M. L. PEREZ. Rev. argent. de obst. y ginec., 1922, vi, 128.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

Study on the innervation of the kidney. E. PAFIN and L. AMBARD. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1922, i, 1.

Knife wound of the kidney. L. PONCE DE LEON. Arch. d. Hosp. Municipal de la Habana, 1922, i, 71.

Ecopic kidney. W. W. ANDERSON. J. Med. Ass. Georgia, 1922, xl, 221.

Congenital malposition of the left kidney with blood supply from the common iliac artery. J. A. KASPER. Kentucky M. J., 1922, xx, 410.

Complete congenital dilatation of the excretory ducts of the kidney: notes on the pathogenesis, development and treatment. J. ESEAT. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1922, i, 30.

The urea-concentration test for kidney function. E. WEISS. Pennsylvania M. J., 1922, xxv, 607.

Glycosuria in renal disorders. G. A. HARRISON. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Urol., 30.

The renal factor in diabetes mellitus. L. H. FUSON. Southwest J. M. & S., 1922, xxx, 2.

The relation of the colon bacilli of renal infections to strains from other sources, and observations on hemolytic colon bacilli. R. D. HERGOLD. J. Urol., 1922, vii, 473.

The significance of pathologic changes in fundus in general arterial and kidney diseases. M. COHEN. J. Am. M. Ass., 1922, lxxviii, 1694.

Diabetes and Bright's disease—can they be cured? E. F. BOWERS. Med. Summary, 1922, xlii, 97.

The use of basic diets in the treatment of nephritis. W. D. SANSUM. California State J. M., 1922, xx, 104.

Focal embolic glomerulonephritis. M. WARWICK. J. Lab. & Clin. Med., 1922, vii, 507.

The fundus changes in nephritis. J. L. BEHAN. J. Am. M. Ass., 1922, lxxviii, 1694.

Sub-acute nephritis and the result of an Edebohl double decapsulation operation. R. D. MCINTOSH. Med. J. Australia, 1922, i, 664.

Febrile stages in chronic nephritis: their significance as observed by functional renal tests. J. O. RITCHEY. Am. J. M. Sc., 1922, clxiii, 382.

The influence of rigid salt restriction in the diet of chronic nephritis. J. S. MCLESTER. Am. J. M. Sc., 1922, clxiii, 704.

The severe hemorrhages of hydronephrosis. Z. MITZINKIN. J. d'urolog. méd. et chir., 1922, xiii, 349.

The value of laboratory experiments applied to the diagnosis of renal tuberculosis. VERLIAC. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1922, i, 65.

A large renal calculus and the kidney from which it was removed. S. G. MACDONALD. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Urol., 36.

A specimen of cystin calculi from the kidney of a child. J. B. MACALPINE. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Urol., 36.

The pathogenesis of renal tumors. E. H. DERRICK. Med. J. Australia, 1922, i, 623.

The treatment of renal tumors. A. NEWTON. Med. J. Australia, 1922, i, 634.

A case of lipoma of the kidney. J. A. BENGOLEA. Semana méd., 1922, xxix, 912.

The extension of hypernephroma by way of the renal vein. L. D. KEYSER and G. S. FOULDS. J. Urol., 1922, vii, 463. [308]

Carcinoma of the kidney in childhood. R. PEIČIĆ. Ztschr. f. urol. Chir., 1922, ix, 9. [308]

A specimen of a sarcoma of the kidney removed from a child, and the patient himself. C. ROWNTREE. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Urol., 30.

Concerning pyelography: a new method of examination in surgery of the urinary organs. J. FRANCOIS. Vlaamsche geneesk. Tijdschr., 1922, iii, 83.

Pyelography; preliminary report. O. S. LOWSLEY. Boston M. & S. J., 1922, clxxvi, 873.

A case of suppurative pyelitis. A. ZUBIZARRETA. Semana méd., 1922, xxix, 825.

Some of the vagaries of the symptomatology of pyelitis. D. J. MILLER. Arch. Pediat., 1922, xxxix, 415.

Therapeutic expulsion of stones in the renal pelvis and ureter. L. THÉVENOT. Arch. d. mal. d. reins et d. organes génitaux-urinaires, 1922, i, 56.

Foreign bodies and leucoplasmia of the renal pelvis. C. ROMITI. Arch. ital. di chir., 1922, v, 440.

Acute pyelonephritis complicating appendicitis. EGGERS. Ann. Surg., 1922, lxxv, 758.

A new method of kidney fixation. O. L. URIBE. Rev. de med. y cirug. de la Habana, 1922, xxvii, 331. [309]

Intravesical cystic dilatation of the interior extremity of the ureter. R. CASSANELLO. Arch. ital. di chir., 1922, v, 420.

A case of total bilateral duplication of the ureters. G. PEDROSA and P. G. LEQUERICA. Arch. d. Hosp. Municipal de la Habana, 1922, i, 77.

- A case of ureteric calculi. J. B. MAFALASON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 32.
- A new sign in the diagnosis of ureteral stones. B. LEWIS. *J. Urol.*, 1922, vii, 47.
- Ureteral calculus. R. L. KRAMER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 39.
- A large ureteral calculus. P. M. HIGGIN. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 39.
- A large ureteral stone in an infant. F. W. BASCHOFF. *Ann. Surg.*, 1922, lxxv, 364.
- Renal ureteral calculi. E. O. SMITH. *Cincinnati J. M.*, 1922, ix, 113.
- Ureteral calculi and phlebotomy. R. BISHOP. *Med. Press*, 1922, n.s. cxvii, 364.

Bladder, Urethra, and Penis

- The human bladder muscle under increased tension. J. C. BALDWIN. *J. Urol.*, 1922, vii, 399.
- A case of spontaneous rupture of the bladder cured without operation. N. A. NORDSTRAND. *Acta chirurg. Scand.*, 1922, lxxv, 305.
- A case of bladder diverticulum. F. F. WARD. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 33.
- Schemata of the vesical neck. L. P. MANCINI. *Rev. med. de Beylles*, 1922, xli, 16.
- A specimen of a vesical calculus enclosing a fragment of bone. C. JURETTEAU. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 30.
- A contribution to the study of papilloma of the bladder. G. CALABRESI. *Rev. de gynéc. d'obst. e de pediat.*, 1922, viii, 80.
- Angiosarcoma of the bladder removed at operation. J. AUB. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 34.
- Electrocoagulation of bladder tumors. E. MANCINI. *Riforma med.*, 1922, xxxvii, 119.
- The treatment of traumatic narrowing of the urethra. G. PAVIERE. *Arch. d. med. d. reins et d. organes génito-urinaires*, 1922, i, 25.
- Abnormal opening of the rectum into the bladder in the infant. V. CROSTA. *J. d'anal. med. et chir.*, 1922, xii, 241. [309]
- Chronic infections of the lower genito-urinary system in the male. M. DREYER. *Arch. med. belges*, 1922, lxxv, 205.
- Five cases illustrating the value of a radical operation for carcinoma of the penis. F. KIM. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 31.

- Streptococcal scrotal and penile gangrene. M. F. CAMPBELL. *Surg., Gynec. & Obst.*, 1922, xxxii, 389.
- A new operation for hypospadias and defects in the pars pendula of the urethra. A. FRUCHT. *Zentralbl. f. Chir.*, 1922, xliii, 399.

Genital Organs

- The operative treatment of tuberculous of the seminal vesicles. I. HERRINGHAM. *Zentralbl. f. med. Chir.*, 1922, xli, 82.
- Vandigature and Stelmach's investigations. C. H. CHERRYWOOD. *N. York State J. M.*, 1922, xxi, 200.
- Prostatic adenoma, diagnosis and treatment. S. B. ARAMON. *Seminars med.*, 1922, xliii, 451.
- The limits of operability by the Freyer method in prostatic cases. G. ROSELLI. *Arch. ital. di chir.*, 1922, v, 289.
- Some disputed points regarding prostatectomy. A. L. CHUTE. *J. Urol.*, 1922, vii, 437.
- Superiority of perineal prostatectomy over the hypogastric in certain anatomical and clinical cases of prostatic hypertrophy. R. MELLA. *Med. Flora*, 1922, xvi, 369.
- One hundred prostatectomies. R. C. BRYAN. *Internat. J. Surg.*, 1922, xxxv, 291.
- Pyomyoma complicating prostatectomy. H. J. VANDEV BEEK and W. J. BUTLER. *Ann. Surg.*, 1922, lxxv, 668. [310]
- Carcinoma of the prostate. J. C. MCCLELLAND. *Canadian M. Ass. J.*, 1922, xii, 415.
- Malignant disease of the retained or imperfectly descended testis. F. P. CONNOR. *Indian M. Gaz.*, 1922, lvi, 207.
- Inguinal testicle; Bevan operation. P. G. LAGUERRE. *Arch. d. Hosp. Municipal de la Habana*, 1922, i, 113.
- Scrotal bandages. C. W. COLLINGS. *J. Urol.*, 1922, vii, 301.

Miscellaneous

- Reflex phenomena of the genito-urinary tract. J. M. BARRERA. *J. d'anal. med. et chir.*, 1922, xii, 337.
- The source of the amylolytic ferment of the urine. P. J. CAMMIDGE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Urol., 37.
- Acute infections of the urinary tract in infants and children subsiding without the appearance of pus in the urine. R. RAMSEY. *Arch. Pediat.*, 1922, xxxix, 417.
- Bacillus coli infection of the urine. W. HALF-WHITE. *Lancet*, 1922, cclv, 1437.
- The rôle of hexamethylenamine in the production of hamaturia. W. A. BLOOMBERG and J. E. HOUGHTON. *J. Lab. & Clin. Med.*, 1922, vii, 514.

SURGERY OF THE EYE AND EAR

Eye

- Eye muscles: functional and pathological. I. D. METZGER. *Halmstad. Month.*, 1922, lvi, 354.
- A new protractor (and for verifying axes of cylindrical and spherocylindrical lenses. S. L. ORANS. *Am. J. Ophth.*, 1922, vi, 411.
- An illuminated perimeter having campimeter features. C. E. FERREY and G. RAMO. *Am. J. Ophth.*, 1922, v, 41.
- The course of the geniculocalcarine visual path in relation to the temporal lobe. H. M. TRACY. *Brit. J. Ophth.*, 1922, vi, 237.
- A new model of schematic eye for ophthalmoscopy (retinoscopy) and ophthalmoscopy. M. C. TANNON. *Am. J. Ophth.*, 1922, v, 436.

- Encephalopathy with ocular complications probably due to lead poisoning. A. C. SAUTTER. *Am. J. Ophth.*, 1922, v, 468.
- A case of quinine amblyopia. R. GAINSBROUGH. *Brit. J. Ophth.*, 1922, vi, 169.
- Amblyopia ex anopsia and recovery of vision. W. H. LUTHER. *Am. J. Ophth.*, 1922, v, 441.
- Dacryocystitis cured by autogenous vaccine. W. N. SHARP. *Am. J. Ophth.*, 1922, v, 458.
- A study of tumors of the lachrymal gland. L. A. LANE. *Am. J. Ophth.*, 1922, v, 445. [311]
- A further note on rapid dilatation in the radical treatment of lachrymo-nasal disease. S. L. ZIEGLER. *J. Am. M. Ass.*, 1922, lxxviii, 1901.
- Eye injuries in industries. G. I. HOGUE. *Wisconsin M. J.*, 1922, xxi, 12.

Rosent ulcer involving the orbit, the maxilla, and the antrum. W. D. HARMER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 32.

Monocular trachoma. H. G. THOMAS and F. S. BANTER. *Am. J. Ophth.*, 1922, v, 470.

Tuberculosis of the eye in children. F. POYALES. *Pediatría españ.*, 1922, vi, 1.

Enucleation: prosthesis. D. J. LYLE. *Cincinnati J. M.*, 1922, iii, 164.

The diagnosis and treatment of corneal ulcers. F. TERRIER. *Presse méd., Par.*, 1922, xxx, 1535.

An unusual case of perforating wound of the cornea. C. KILICK. *Brit. J. Ophth.*, 1922, vi, 306.

Report of a case of epithelioma of the cornea. D. Y. KEITH and J. P. KEITH. *Am. J. Roentgenol.*, 1922, n.s. ix, 187.

Shall we operate on one-sided senile cataract? H. GUYRON. *Med. Herald*, 1922, xli, 176.

A clinical account of a series of cases of capsular (capsulo-subcapsular) cataract associated with the deposit of pigment at or around the center of the capsule, with considerations as to the etiology. E. THOMSON. *Brit. J. Ophth.*, 1922, vi, 341.

Certain questions relating to the total extraction of cataract by the Barraquer method. F. M. URRÁ. *Siglo méd.*, 1922, lxi, 4.

Are the advantages of the Barraquer method counterbalanced by its inconveniences? VAN LINT. *Bruxelles méd.*, 1922, 2, 373.

Concerning congenital coloboma of the lens. W. B. WIEDER. *Am. J. Ophth.*, 1922, v, 495.

Self expression of lens. K. C. WOLD. *Am. J. Ophth.*, 1922, v, 470.

Glaucoma and its surgical treatment. F. LAGRANGE. *Presse méd., Par.*, 1922, xxx, 341.

Retinitis of hypertension plus nephritis. W. L. BENNETT. *J. Am. M. Ass.*, 1922, lxxviii, 1688. [312]

Retinitis proliferans. H. V. WUZEDEMANN. *Am. J. Ophth.*, 1922, v, 337. [312]

Ophthalmic neuro-retinitis. R. H. COWLEY. *Kentucky M. J.*, 1922, xx, 121.

An unusual circular lesion of the retina. W. A. CASSIDY and S. R. GIFFORD. *Am. J. Ophth.*, 1922, v, 434.

A case of retinobulbar neuritis from nasal accessory sinus disease. H. A. VAIL. *Cincinnati J. M.*, 1922, iii, 118.

Clinical studies of electrotherapy of the eyes. R. M. SANCHEZ. *Siglo méd.*, 1922, lxi, 509.

Ear

The diagnosis and treatment of some common ear conditions. J. N. HOFFMAN. *Med. Times*, 1922, l, 167.

Remarks on the psychology of deafness. T. HUBBARD. *Laryngoscope*, 1922, xxxii, 473.

Wireless telephony for the deaf. D. MCKENZIE. *Med. Press*, 1922, n.s. cxlii, 490.

Aural exostosis—second removal from the same meatus nine years after the first. R. LAKE and A. J. WRIGHT. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 35.

Clinical contributions on the etiology of hard fibromata of the ear. T. LAURENTI. *Policlin., Rome*, 1922, xxix, sez. chir., 330.

The treatment of ear infections in contagious diseases. J. J. GILBERT. *Rhode Island M. J.*, 1922, v, 257.

Syphilis of the inner ear and eighth nerve. G. W. MACKENZIE. *Virginia M. Month.*, 1922, xlix, 120.

The control of earache through the nasal (sphenopalatine, Meckel's) ganglion. G. SLUDER. *J. Am. M. Ass.*, 1922, lxxviii, 1708.

Otosclerosis—with a possible bearing on the etiology of the disease. R. LAKE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 36.

A case of unilateral "nerve deafness" in disseminated sclerosis, with immobility of the opposite vocal cord. J. DUNDAS-GRANT. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 42.

A case of acute inflammation of the middle ear, with empyema of the antrum in an acellular bone with a dense outer antral wall. A. H. CHEATLE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 38.

Acute suppuration of the middle ear: early drainage of the mastoid antrum. D. MCKENZIE. *Lancet*, 1922, ccii, 1191.

A plea for an early and more adequate incision of the drum membrane in acute purulent otitis media. J. W. MILLER. *Med. Times*, 1922, l, 168.

A case of localized suppurative meningitis over the motor cortex following acute mastoid suppuration; drainage; recovery. W. H. OGILVIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 30.

Otitic meningitis. G. J. JENKINS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 29.

Report of five cases of mastoiditis with atypical symptoms. W. C. PHILLIPS and I. FRIESNER. *J. Am. M. Ass.*, 1922, lxxviii, 1796.

Observations on acute mastoiditis. S. S. QUITNER. *Ohio State M. J.*, 1922, xviii, 405.

The blood clot as an adjunct in the mastoid operation. L. L. HENNINGER. *J. Lancet*, 1922, n.s. xlii, 314.

Temporo-sphenoidal abscess. J. ADAM. *Brit. M. J.*, 1922, l, 991.

Report of a case of temporo-sphenoidal brain abscess following acute mastoiditis. R. ALMOUR. *Laryngoscope*, 1922, xxxii, 478.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

Plastic repair of nasal displacement and deformity. R. H. GOLDTHWAITE. *Mil. Surgeon*, 1922, li, 42. [313]

A case of epithelioma of the nose. M. HELMANN. *Semana méd.*, 1922, cxix, 1111.

A case of tumor of doubtful nature removed from the right ethmoidal region. H. G. B. RUSSELL. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 33.

Epithelioma of the ethmoidal region five years after operation. D. MCKENZIE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 34.

Carcinoma of the nasal fossa and antrum. W. D. HARMER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 33.

Papillary columnar-celled carcinoma of the right antrum and ethmoid. N. PATTERSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 35.

Carcinoma of the left ethmoid region. T. H. JUST. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 34.

A case of carcinoma (spheroidal-celled) of the right antrum removed by operation. E. M. WOODMAN. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Laryngol., 31.

Endothelioma of the right nostril, sinusitis, spheno-
iditis. A. J. HUYGHEMONT. *Proc. Roy. Soc. Med., Lond.*,
1922, xv, Sect. Laryngol., 25.

Squamous-cell carcinoma of the nasal fossa and the
sinus. W. D. HARRISON. *Proc. Roy. Soc. Med., Lond.*,
1922, xv, Sect. Laryngol., 25.

Squamous-cell carcinoma of the left maxillary antrum.
F. J. CARRINGTON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv,
Sect. Laryngol., 25.

A new operative technique for the operative and post-
operative treatment of maxillary sinus diseases. H. B.
LOEWER. *Laryngoscope*, 1922, xxxii, 263. [313]

Calculus of the nose and throat: report of cases. L. W.
BARTH. *Laryngoscope*, 1922, xxxii, 452.

The weight of nasal spurs. J. C. WARREN. *Mod.*
Laryngol., 1922, xiv, 85.

Tertiary syphilis of the nose and throat. W. SCHULING.
Mod. Times, 1922, i, 137.

Postoperative complications of the submaxillary resection
and their treatment. A. A. SCHWARTZ. *Am. J. Surg.*,
1922, xxxv, 573.

A case of fatal meningitis following submaxillary resection
of the nasal septum. W. F. POWELL. *Mod. Press*, 1922,
n. s. cxvii, 347.

Indications for operation on the saddle cartilage. H.
BAXTER. *South. M. J.*, 1922, xv, 290.

The effects of the X-ray on the infected lymph tissue of
the nasopharynx. W. D. WEINBERGER. *N. York State*
J. M., 1922, xlii, 298.

The syndrome of malignant tumors of the nasopharynx:
a report of seventy-nine cases. G. B. NEW. *J. Am. M.*
Ass., 1922, lxviii, 19. [313]

Some determining factors in nasal sinus diseases. G. F.
HARRISON. *J. Iowa State M. Soc.*, 1922, xli, 122.

Inflamed sinusitis. H. SMITH. *N. York M. J. & Med.*
Rev., 1922, cv, 724.

Brief remarks on sinusitis, with report of a case. N. J.
COOPER. *Virginia M. Month.*, 1922, xlii, 151.

Throat

The association of failure of accommodation with sore
throat. I. McMillan. *Lancet*, 1922, cv, 1928.

The tonsils. S. CAMDEN. *N. York M. J.*, 1922, cv, 608.

The clinical relation of the tonsils to the thyroid. J. A.
STOCK. *Kentucky M. J.*, 1922, xx, 172.

The submucosal tonsil. D. L. FAWCET. *Virginia M.*
Month., 1922, xlii, 139.

The control of hemorrhage in the tonsil operation.
F. W. BARKER. *J. Iowa State M. Soc.*, 1922, xli, 112.

Infections following or complicating tonsillectomy and
adenoidectomy. F. B. BECKER. *Nebraska State M. J.*, 1922,
xvi, 169.

Indications for tonsillectomy in infancy and childhood.
H. HEIMEN. *Arch. Pediat.*, 1922, xxxix, 322.

The effect of tonsillectomy on the general health in
young children. A. D. RADAR. *J. Am. M. Ass.*, 1922,
lxxviii, 1869.

Epiglottal tumor. E. R. ARFILLANO. *Arch. d. Hosp.*
Municipal de la Habana, 1922, i, 129.

The management of tuberculous laryngitis. W. V.
MULLER. *South. M. J.*, 1922, xv, 455.

The use of the electric cautery in laryngeal tuberculosis.
G. B. WOOD. *Am. J. M. Sc.*, 1922, clxlii, 832.

Neuro-syphilis with severe laryngeal crisis: tracheostomy.
J. W. LARVIN. *Brit. M. J.*, 1922, i, 945.

Total extirpation of the larynx. A. JIRÁNEK. *Časop.*
lék. česko., 1922, lxi, 129.

Concerning laryngotomy. B. NICHOLLS. *Bull. d. m.*
med., 1922, x, 273.

The complications of laryngotomy. A. PRÉCÉDÉ.
Časop. lékař. česk., 1922, lxi, 167.

Laryngotomy for cancer of the larynx with modified
technique and attempted formation of a skin graft tube
in place of the larynx. R. H. GOSWORTHY. *Laryngo-*
scope, 1922, xxxii, 446.

Mouth

Handlip and cleft palate. C. M. CLARK. *Ohio State*
M. J., 1922, xviii, 417.

The surgical anatomy of cleft palate. V. VEAR and C.
RUPPE. *J. de chir.*, 1922, xx, 1.

Oral sepsis and systemic disease. W. B. WATSON.
Practitioner, 1922, cym, 427.

Some notes on oral sepsis in its relation to general disease.
J. M. ARLAND. *Brit. M. J.*, 1922, i, 872.

The examination of the teeth in group medicine. B. S.
GARDNER. *Minnesota Med.*, 1922, v, 336.

The tongue as a source of systemic infection. T. R.
FRENCH. *N. York M. J. & Med. Rev.*, 1922, cv, 705.

Incurable endothelioma of the upper maxilla (an-
trum) under treatment by diathermy. D. McKENZIE.
Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Laryngol.,
34.

Endothelioma of the maxilla and antrum. W. D. HAR-
MER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect.
Laryngol., 35.

Squamous and prickle-cell carcinoma of the hard
palate and right antrum. N. PATTERSON. *Proc. Roy. Soc.*
Med., Lond., 1922, xv, Sect. Laryngol., 35.

Studies of the position in stere and maxillofacial distur-
bances as revealed by the roentgenogram, and their prob-
able etiological bearing on dental facial deformities and
malocclusion of the teeth. B. W. WEINBERGER. *Dental*
Cosmos, 1922, lxxv, 622.

INTERNATIONAL ABSTRACT OF SURGERY

NOVEMBER, 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Adams, Z. B.: The Treatment of Congenital Dislocation of the Hip as Practiced by Professor Denuce at Bordeaux, France. *J. Bone & Joint Surg.*, 1922, 33, 523.

Stimulated, no doubt, by the rather surprising report on the results in congenital dislocation of the hip of the committee of the American Orthopedic Association, the author made a trip to Bordeaux to study the methods which give a higher percentage of perfect results than are obtained in America.

He found that during the past seven or eight years Denuce has reduced over 900 luxations or subluxations of the hip with but few failures. The method employed is similar insofar as the technique of reduction is concerned to that used by Ridlon and many other American surgeons, with the addition of manual stretching of the adductors. The after-treatment is vastly different from American methods.

Stretching of the adductors is first done by stroking with the palm of the hand without force until the thigh will lie on the table at right angles to the trunk, the patient being in dorsal decubitus. The thigh is then flexed strongly and pressed down on the abdomen, the knee pointing toward the opposite axilla. Pressure is then made in the longitudinal axis of the thigh, the operator's other hand pushing the muscles up around the head and neck of femur posteriorly. The knee is carried across the body to its own side, then downward to the surface of the table, and then abducted, the fingers behind the head being held firmly in place and lifting. The circumduction is slowly continued until the thigh is brought to a right angle with the body and lying on the surface of the table, the assistant holding down the opposite side of the pelvis by a hand over the crest and anterior spine. The head is felt to come slowly forward and lodge in the acetabulum. Usually the hip is put up at a flexion angle of 90 degrees and an abduction angle of 90 degrees. Hips which seem very unstable are put at a flexion angle of 70 and an abduction

angle of 90 degrees. If the hip cannot be reduced a the first trial it is put up in traction for three week before the operation is repeated.

Following the reduction the child is kept recumbent on a firm, flat, padded table for three months, at the end of which time, if the head of the femur is felt forward in the groin, the cast is cut off above the knee. In six months the entire cast is bivalved, the anterior half discarded, and the child bandaged into the posterior half. Each day hot sand in a cloth pad is applied at the knee and over the front of the hip for one hour, the patient lying in the plaster. After this heating, the child is coached to move its legs, to lift the femur forward, to straighten the knee, and to rock the lower leg. General heliotherapy is also given. At the end of two or three weeks, the posterior plaster is removed, the child then lying on the top of the firmly padded table.

After the cast is entirely discarded exercises are given twice a day in half-hour periods. No passive motion is used, but active motion in all directions is encouraged. After three or four weeks of exercises, baths in a strong salt solution are begun. The solution is so strong that the child bobs up and down in the water, its feet never touching the bottom of the tank; its temperature is about 70 degrees F. These baths are given in thirty-minute periods daily for about a month, and then every other day for two months. Then, after an interval of a month, the latter course of baths is repeated. The exercises and heliotherapy are continued all of this time.

No weight-bearing is permitted until the ossification center in the head of the femur is seen to be increasing in size, which is usually three to five months after the removal of the cast. Exercises, local heat, and baths are continued for many months.

All of the patients were under 7 years of age; four were between 6 and 6½ years, one was 5½ years, and the others were between 1 and 4 years. The results were: perfect function in nineteen cases, and good function, but slight laxity or limitation of abduction in five cases. WILLIAM A. CLARK, M.D.

SURGICAL INSTRUMENTS AND APPARATUS

Trèves, A.: New Apparatus for the Treatment of Congenital Luxation of the Hip (Nouvel appareil pour le traitement de la luxation congénitale de la hanche). *Rev. d'orthop.*, 1922, 18: 15, 174.

Trèves refers to the method of Le Damany in the treatment of congenital luxation of the hip which consists of three months of plastic immobilization in the Lorenz position followed by the application of an articulated metal apparatus for a period varying from three to six months. The metal apparatus is fixed to a plaster belt but the knee is left free and extensive flexion movements of

the hip are allowed while extension and adduction are prevented. Le Damany allowed children to walk with this apparatus.

Trèves suggests certain modifications in the apparatus. For better fixation of the square metallic plate he places it between the several folds of the abdominal plaster cast, thus securing a firmer grip for the metallic rod fixed to the plate which keeps the thigh in the necessary position of abduction. The knee is not allowed free play, being strapped and fixed by a band to the metal plate fixed in the abdominal cast. The apparatus can be used for unilateral or bilateral luxations of the hip.

W. A. BRENNAN.

SURGERY OF THE HEAD AND NECK

HEAD

Della Torre, P. L.: Nine Cases of Early Traumatic Epilepsy Due to Cranial War Wounds (Annotazioni sopra 9 casi di epilessia traumatica precoce in feriti cranici di guerra). *Arch. ital. di chir.*, 1922, 9, 349.

In 100 cases of cranial war wounds observed during 1915-1918 epilepsy developed in nine. The 100 cases included sixteen with epicranial lesions including the periosteum; thirty-two extra-theccal cranial lesions; twenty-seven fractures of the cranial theca with sinking and dislocation of bone fragments but without solution of continuity of the cerebral substance (in twenty-two of these the bone spicula had lacerated the dura mater); eight cases of extradural hematoma; five cases of subdural localized hematoma; three cases of subdural serous cysts; and two cases of walled off extradural and subdural hematoma.

The following complications were observed: localized fibrous pachymeningitis in four cases; extradural abscess in two; extra and subdural abscess in one; and fracture of the cranial theca with lacerations of the cerebral substance in twenty-five. If the epicranial lesions and those outside the cranial theca are excluded, there were nine cases of early epilepsy in fifty-two cranial and cranio-encephalic wounds, an incidence of 17+ per cent. In six of these nine cases the central convulsions were clearly involved by the injury or by its consequences. Six were cases of Jacksonian epilepsy and two of the generalized type, while one was of the sensitive-sensorial type. The other forty-one cases included thirteen cases in which the central convulsions were directly injured but there were no signs of epilepsy. Of nineteen cases of intra-cranial lesions in the Rolandic zone about one-third showed early epilepsy. These were all cases of persons who, up to the time of the injury, had been entirely normal.

All the cases in which the cranial and encephalic lesions were situated about the central convulsions or not far from them the author treated by craniectomy and careful removal as far as possible of all

causes which were judged to be responsible for the epilepsy. He abstained from excising the meninges when they appeared altered by the traumatism alone if there was no evidence of progression toward definite epilepsy.

These nine patients have been followed for four or five years. Seven are cured, one has become worse since the operation, the epilepsy having soon recurred in a more severe form, and the another has generalized epilepsy but the attacks are lighter and less frequent than before.

The author admits that a cure cannot be claimed definitely even after a five-year interval. The good results were due in these cases to the early operation and the fact that the patients were young and without neuropathic taint.

W. A. BRENNAN.

Rawling, I. B.: Remote Effects of Gunshot Wounds of the Head. *Brit. J. Surg.*, 1922, 1, 93.

This article is based on 1,000 cases. Replies were received from 452 of the patients to whom a questionnaire regarding their present condition, working capacity, etc., was sent.

Rawling believes that although headaches are so frequently the outstanding feature of a gunshot wound of the head, they are merely part of a more general state. In the syndrome he includes the following conditions: (1) headache; (2) giddiness; (3) insomnia; (4) mental anxiety, depression, irritability of temper; (5) a general tremulous condition, shaking of the hands, and an uncertain gait; (6) slight exaggeration of the knee jerks with spurious ankle clonus; and (7) fits (fainting, epileptiform, and epileptic). In many of these cases the symptoms are associated with, and dependent on, a generalized condition of cerebral oedema. At any rate it can be proved that in most cases there is a great excess of cerebrospinal fluid, and the removal and drainage of this excess almost instantaneously relieves all of the symptoms.

The general lines along which treatment can be conducted in the milder cases are discussed. In the more severe cases all palliative measures should be tried before decompression is done. In general,

Rawling is opposed to lumbar puncture as a therapeutic measure in these cases.

Forty cases of decompression, with details as to the operation, the choice of anæsthetic, the after-treatment, the end-results, and the choice of cases, are tabulated. While admitting his lack of experience in bone-grafting in the skull, the author states that to close or protect the gap left by operation he prefers celluloid plates. E. C. ROBITSEK, M.D.

Holmes, G.: Clinical Symptoms of Cerebellar Disease and Their Interpretation. *Lancet*, 1922, cciii, 59.

This article deals with disturbances in complex actions in alternate movements. Holmes explains Babinski's theory of *adiadokocinesis*. Graphic records are of great importance as by means of them elementary abnormalities can be recognized.

The most convenient test is rapid pronation and supination of the arm at the elbow.

In unilateral lesions the rapid pronation and supination excursions are regular in rate and range. Segments not concerned in the act are adequately fixed at their proximal articulations, thus maintaining proper postural relations to the moving forearm. On the affected side primary movements are irregular in rate and range, there are various accessory movements in the segments of the limb proximal and distal to the moving part, and the movement is often half or a third that of the normal limb. The slowness, however, is not constant. At first the rate is near normal but it gradually decreases until the subject is unable to continue it. Pronation and supination may be separated by constantly varying intervals. An abrupt arrest of the limb may occur at the end of excursion. Slowness results in delay at the turn more frequently than at the beginning of movement. Movement is irregular in range; some or all of it may be excessive and it may be arrested before it reaches its natural limit. The irregularity becomes more noticeable when the limb tires. Action is more inaccurate and less complete when both limbs are moved simultaneously. This is due partially to insufficient attention to the affected limb and partially to lack of synchronism when different acts are attempted with the two limbs.

In cerebellar lesions inappropriate accessory movements are sometimes conspicuous. For example, the elbow may sway if it is not supported, this being due to displacement of the shoulder. The fingers are held inert. The wrist is displaced ulnarward and there is flexion of the ulnar fingers when the forearm is supinated. These adventitious movements are due to the toneless state of the muscles and influence the regularity of actions attempted because their execution depends upon fixation of the arm or forearm. Range irregularity is striking because of the larger scale of the movements. Sometimes the forearm is flexed until it is checked by the ligaments of the elbow joint. Distal segments often flop inertly, the wrist flexes as the

hand approaches the shoulder and extends when the hand is pulled away. The elbow is jerked upward, and wabbles if it is not supported.

When the fingers are flexed and extended they fall out of alignment, failing to flex and extend simultaneously. Spreading often occurs, causing weird attitudes. Often the thumb is abducted over or under the fingers. In cases of cerebellar disturbances synergic disturbances are present. On the affected side both the fingers and the hand are flexed by the long flexors of the fingers. The wrist and fingers do not move synchronously because the synergic extension fails.

In attempting flexion and extension of the foot at the ankle of the affected extremity, irregularity in the time rate and range will be noted. When the subject is in the recumbent position the normal synergic movements of the ankle are excessive or absent on the affected side. If the subject is placed on a high stool with his legs hanging down, the foot of the affected side sways if flexion and extension at the ankle are attempted. In flexing and extending the toes of the normal foot, the foot is fixed at ankle. Attempts to make the same movements with the affected foot cause the latter to flex and extend or to turn in and out. Rapid tapping of the table will cause the hand to slide along before it rises again. Tapping the foot on the floor will cause the foot to sway before it reaches the floor.

Lack of tone will not wholly explain the failure in synergic association. Dissociation in time and the force of contraction of separate groups of muscles must be a factor. This is due probably to the relatively greater time necessary to initiate contractions in one group than in another. Confusion during alternate movements is due to disturbance in these elementary factors. Alternate movements are controlled by subconscious effort. If this control is affected it is replaced by conscious effort. The erroneous though purposive actions developed through forced action may be due to subconscious effort to escape when both muscle and attention are becoming exhausted.

A person with a unilateral cerebellar lesion stands with the trunk and head inclined toward the affected side and the spine concave in this direction. The pelvis is tilted so that the weight is thrown on the normal foot. The homolateral shoulder is usually in front because the body is rotated on its long axis toward the affected side. The face is rotated toward the unaffected side. When the lesion is recent and severe the subject may be forced to support himself. Whether supported or unsupported he can be easily pushed toward the affected side by gently tapping his shoulder, but forceful efforts to restore his balance are resisted. This instability can be explained on the basis of a disturbance of function of the trunk muscles. In standing the homolateral leg is abducted and rotated outward. The whole body sways, and the head is tremulous. Twitching may be observed in the muscles of the legs.

Falling is due partially to the affected leg which has a tendency to give way. Difficulty is experienced in standing on the affected leg perhaps because of failure of the extensor muscles of the knee on the affected side. When the subject is barefooted the unsteadiness is increased; the toes do not grasp the floor as they do normally when the balance is threatened. Readjustment of balance when displacement of any part of the body occurs is never immediate or correct.

In cases of unilateral cerebellar lesions the homolateral leg movements are characteristic. The foot is raised too high; consequently it falls to the floor inertly, is placed with too much force, or is dragged forward or the toes touch the floor. Usually the foot is placed in moderate abduction, but often placed in advance of the normal foot so that the subject trips over it and falls toward the normal side. In other cases the entire foot may be placed flat or placement of the toes may be delayed. In advancing, the foot flops inertly or the limb may be rigidly extended with the foot dorsiflexed. The step may be too long or too short.

The patient usually reels, lurches, or stumbles toward the affected side and tends to deviate in his direction. With his eyes closed he wanders at a considerable angle from the objective point. Balance is maintained better in rapid movement than in slow movement and is greatly disturbed by sudden turns because of difficulty in controlling the inertia of the body through proper movement. Rising and sitting down tend to disturb the equilibrium. Irregularity of the ground tends to increase unsteadiness because the subject is unable to adjust the affected foot. In ascending a plane the foot is elevated excessively or the toe strikes the rise of the next step. In descending, one foot at a time is used.

The homolateral arm hangs inertly at the side or is held against the thorax or abducted with the elbow flexed.

In cases of bilateral lesions, especially of the vermis, maintenance of equilibrium is more difficult. The subject stands with his feet apart, his body sways from side to side, and he generally crouches forward. He may fall in any direction. In cases of vermis lesions there is a tendency to totter forward or backward for a step or two and then to fall without making any attempt to gain equilibrium. In walking, the subject staggers, sways and reels in all directions. The leg movements are similar to those in cases of unilateral lesions except that they are more hurried because of fear to place weight on either foot. Falling is due to misplacement of the foot or failure to adjust the weight of the body to an unnatural position.

The instability in standing and walking and the tendency to fall are attributed to errors in moving and placing the affected legs, instability of the leg causing it to flex under the subject's weight, and failure of proper adjustment of the center of gravity to the base on which the subject rests or the line on which he moves.

Only extensive lesions of the cerebellum, especially those involving the vermis, cause speech disturbances. In these cases speech is slow, drawing, and monotonous and syllables are uttered in a slurred, jerky and explosive manner. The voice is too loud or not properly modulated. In cases of severe bilateral lesions speech may be temporarily unintelligible. In cases of unilateral lesions of the cerebellum improvement is usually rapid but in cases of bilateral lesions it is slower and speech may never be perfect.

Abnormalities in speech can be explained on the basis of a lack of association between the movement necessary for normal speech.

A few cases of severe cerebellar injury do not present disturbances in ocular movements. Most ocular movements are transient unless disease is progressive, then it is indefinite, particularly the nystagmoid symptoms. During rest, the eyes are directed slightly toward the contralateral side and there is never any loss of power of movement to the affected side. Relative weakness of deviation toward the affected side disappears rapidly. Vertical movements and convergence are not affected by unilateral lesions but in cases of bilateral lesions their execution is less easy than normal.

Nystagmus is a common symptom in cerebellar lesions. It is most marked immediately after the development of a severe lesion. In slight cases it disappears quickly. Any movement from the center or normal side usually causes nystagmoid jerks. It is more pronounced when the eyes are moved laterally toward the side of the lesion. Oscillations are slow and of relatively greater range as accurate fixation is maintained. They cease or become irregular and intermittent when the eyes are deviated toward the normal side.

In cases of cerebellar lesions the nystagmus is essentially a fixation nystagmus, being elicited only or pronounced when the eyes are fixed on some point. Nystagmus is more symmetrical in bilateral injuries of the cerebellum. Vertical nystagmus occurs more commonly in cases of vermis lesions though it may develop when the injury is limited to the cerebellum.

The frequency of nystagmus in all cerebellar diseases proves that it is due to lesions of the cerebellum rather than to lesions of neighboring structures. It can be attributed to disturbances of tonic contractions of the ocular muscles which maintain position. Each half of the cerebellum must be concerned in maintaining all the positions of the eyes. The influence is greater when the eyes are deviated toward the same side. The cerebellum is concerned in vertical postures of the eyes, though this function may belong to vermis.

Nystagmus can be explained as due to deficiency in the tone of the muscles which should maintain the eyes in the position to which they are brought voluntarily. The cerebellum is concerned with the regulation and control of this postural tone.

S. J. HARRECHT, M.D.

Macewen, W.: *Brain Surgery*. *Lancet*, 1922, cciii, 213.

After reviewing the evolution of our present knowledge regarding the function of the brain, the author discusses the localization of brain lesions by means of motor and sensory tests, and the relation also of other symptoms to the area involved. He mentions a case of word-deafness and psychic blindness in which recovery followed the removal of a lesion in the posterior area of the upper temporal convolutions with extension to the angular gyrus.

Lesions of the silent areas may be diagnosed after their extension into neighboring localities. Through upward pressure lesions over the temporo-sphenoidal lobe cause the following signs in the following order: (1) passivity over the face on the side opposite the lesion, which becomes a definite paresis or even paralysis as the lesion extends; (2) reduction of the power of emotional expression; (3) patency of the eyelids during sleep; (4) paresis or paralysis of the arm on the opposite side; (5) early dilation of the pupil on the same side; (6) ptosis; and (7) impairment of accommodation to light and distance and fixation of the pupil.

The types of tumor vary from the simple, easily removed subdural meningeal fibroid to sarcoma of the meninges and glioma of the brain which are very difficult to eradicate. The size of the tumor is not an indication for or against removal; the larger as well as the smaller ones should be operated on in order to prevent cranial compression.

Tumors of the hypophysis usually cause the symptoms of acromegaly and alterations of sight and smell. Operation can be done through the fronto-temporal route. In one case the author removed five polypoid tumors originating from the membranous covering of the pituitary.

Leptomeningitis, the most dangerous complication of brain abscess, follows the subdural spaces of the arachnoid. The arachnoid should be thought of as composed of loose connective tissue in which blood vessels are suspended on the surface of the brain. If fluid or pus separate this layer they may extend throughout the entire space and cause pressure on the basal parts, causing death. Thus death is hastened by gravity when the patient lies on his back.

In opening the skull the author seldom uses the trephine. If a vessel is injured, the dura should be quickly opened to prevent pressure from the resulting hemorrhage. The vessels are extremely delicate and should be spared if possible as anemia of even a minute area of the brain may lead to degeneration and perversion or destruction of function.

Pyogenic infection travels rapidly along the pia, and thus involves the whole cortex. In opening an abscess in the brain the original path of an infection should be followed because the rest of the brain has been walled off. Cerebral abscesses are not always pyemic and are therefore amenable to treatment.

When removing the osseous covering to approach an abscess care must be taken to prevent rude vibra-

tions which may cause the infected spicules of bone to penetrate the membranes and thus spread the infection. Therefore the gently vibrating burr should be used and the osteotome and mallet or trephine avoided.

Adhesions are the cause of much postoperative trouble such as headache and vertigo. Normally the brain floats freely in its fluid-filled cavity. For the prevention of adhesions the author has used small pieces of arachnoid; part of the omentum, which was satisfactory; blood clot, which allows healing of the wound in the brain before it is absorbed; and gold-foil. The latter occasionally causes irritation. He covers the aperture in the skull by reimplantation of bone.

Tubercles of the brain are not always meningeal and are not always fatal. If single or within the brain substance they can be removed. Often their removal relieves the epilepsy and prevents their dissemination.

The occurrence of neoplasms in the cerebellum causes characteristic symptoms, not only those of the respiratory and cardiac centers but those due to pressure on the cerebrum, pain, headache, and vomiting, dyspnea, and slow pulse. Relief is afforded by removing the bony covering and opening the dura. The pressure may extend over the whole cerebellar fossa, even into the posterior part of the foramen magnum. Early diagnosis is important. The condition is suggested first by symptoms of cerebral pressure. In children formerly bright such signs as carelessness, negligence, listlessness, dullness, and apathy are suggestive. The differential percussion note reveals distension of the ventricles.

An abscess in the cerebellum is difficult to diagnose early. If it is due to extension from the middle ear, the location of the infected tract in the vicinity of the bend of the sigmoid sinus is so constant that it indicates the point of access to the pus.

The author cites a case in which, after the most severe symptoms, unconsciousness, and respiratory failure had resulted, the removal of about 2 oz. of pus from the cerebellum was followed by a rapid and complete recovery. MARCUS H. HOBART, M.D.

Blair, V. P.: *Reconstruction Surgery of the Face*. *Surg., Gynec. & Obst.*, 1922, xxxiv, 701.

In reconstructive surgery of the face a detailed plan of procedure is of great importance.

The author draws attention particularly to the value of facial balance in the plan for the correction of facial deformity because preservation of this balance will often cover a technical defect.

He describes in detail the treatment of fourteen cases in the army in which the defect was due to a shell wound. This work was carried on with the cooperation of artists, sculptors, and photographers. A schematic drawing was made of each case and the end-result was obtained by numerous steps such as the excision of scars, the mobilization of flaps, and fascial, muscle, and bone transplants.

Attention is directed to the value of inserting rubber dam drains in small pockets under the flaps; to the fact that the free bleeding which may follow the excision of scars can be controlled best by ligation of the external carotid artery; and to the importance of avoiding tension on the flaps and sutures. Skin when turned into the mouth may continue to grow hair but the hair may be removed by the use of radium. The injection of cold paraffin is not followed by untoward effects and is not open to the objections raised against the use of melted wax.

The article is profusely illustrated by drawings and photographs explaining the methods used.

V. G. BURNES, M.D.

Carter, W. W.: Bone Surgery of the Nose. *Surg., Gynec. & Obst.*, 1922, XLIV, No. 2.

The correction of nasal deformity must be based on the bony and cartilaginous framework of the nose. The nose is an arch whose position and shape are maintained by support only at its extremities. The upper edge of the septum acts as a keystone. Deformities and irregularities result when one or more of these integral parts are disturbed.

The author considers the bridge splint entirely satisfactory in the treatment of recent fractures and old traumatic deformities. Bone and cartilage transplants are used in cases in which there is defect in the framework due to such causes as congenital malformation, traumatism, operation, abscess of the septum, atrophic rhinitis, syphilis, and tuberculosis.

The bone transplant must be more than a mechanical filler; it must be alive and capable of growth when brought in contact with live bone. The best results are secured by means of autogenous, periosteum-covered transplants placed in contact with live bone. If the transplant does not grow and function, it soon becomes absorbed and failure results.

In the author's operation a section 2 in. long is removed from the eighth or ninth rib with its periosteum intact. It is then split and the cancellous tissue is scraped off. When the tip of the nose is to be restored a piece of cartilage is taken with the bone. Several thin transplants are preferable to one bulky piece. The use of strong antiseptics is carefully avoided. The nasal work is done through a small incision made in the roof of the left vestibule. The periosteum is freely elevated from the nasal bones and the graft inserted under the periosteum of the nasal process of the frontal bone. Blood clots are not disturbed because they favor osteogenesis. The nose is immobilized by means of a well-padded tin-lined copper splint. Swelling may be lessened by the use of a hot water jacket for the first twenty-four hours. Under favorable conditions bony union may be expected in about two months. A bony strut inserted between the lower end of the graft and the nasal spine of the superior maxilla will serve to keep the end of the transplant elevated.

V. G. BURDEN, M.D.

NECK

Ijalin, J. L.: Tumors of the Carotid Gland. *Ge-schwächte der Glandula carotidea*. West. Western. *Wladyslawski Guberniya* : *Richikowo Wassennowo Gospitalia*, 1921, 26.

The carotid gland is found in 12.5 per cent of human beings. It is situated in the upper cervical triangle where the carotid artery divides into its internal and external branches. It is 5 to 7 mm. long, 2 to 4 mm. wide, and 1.5 mm. in diameter. It is bounded laterally by the plexus of the vagus nerves and the internal jugular vein, medially by the trachea and recurrent nerve, and posteriorly by the plexus of the sympathetic nerves. Its function is not yet known. According to some authors the gland is of perithelial origin, but according to others it should be regarded as a sympathetic paraganglion.

The author reviews briefly seventy-eight cases of tumor of the carotid gland collected from the literature. Such tumors appear most frequently between the twentieth and fortieth years of age, grow slowly, and seldom metastasize. A correct diagnosis is rare. Frequently the condition is believed to be tuberculous lymphadenitis.

The author distinguishes three types of tumor. Those of Type 1, which constitute 43 per cent of neoplasms of the carotid gland and are usually no larger than a hen's egg, are homologous to the gland and characterized by hyperplasia, a distinct capsule and slow growth. Those of Type 2, making up 36 per cent of carotid-gland tumors, have no capsule, show a more confused structure, grow partly by infiltration, and may be regarded as infiltrating sympathico-blastomata. Those of Type 3, making up 21 per cent of tumors of the carotid gland, represent sarcomatous or carcinomatous degeneration. Tumors of the last type may attain considerable size.

In sixty-five of seventy-eight cases of tumor of the carotid gland the radical operation was performed. In 30 per cent of the cases the tumor was successfully separated from the large arteries; in 57 per cent all three carotid arteries were ligated. Death occurred in 36 per cent.

It is most important to spare the vagus nerve; after its division tachycardia, which may easily lead to cardiac paralysis, and slow inspiration (bronchopneumonia, pulmonary oedema) appear. Resection of the vagus nerve was followed by death in 70 per cent of the cases in which it was done. Of the patients subjected to ligation of all three carotid arteries and resection of the vagus nerve only two recovered. The following case treated in this manner is reported.

A 34-year-old man, otherwise healthy, had a tumor of the carotid gland the size of a pigeon egg. Its removal was desired for cosmetic reasons. A diagnosis of tuberculous lymphadenitis was made. At operation all three carotids and the jugular vein were ligated and the vagus nerve was resected. The

operation was followed by tachycardia, coughing, and marked expectoration. Death occurred on the fifth day. Autopsy showed: cardiac paralysis and pneumonia. (GREGORY (Z)).

Kanavel, A. B.: Retropharyngeal and Posterior Mediastinal Abscesses. *Surg. Clin. N. Am.*, 1922, 17, 603.

Cold abscesses secondary to tuberculous disease of the cervical and dorsal vertebrae may cause serious and widespread involvement because of their tendency to gravitate downward into the posterior mediastinum. According to their location they should be drained as soon as recognized through the neck or through a dorsal approach. Frequently their evacuation and closure is followed by complete remission of symptoms. Often retropharyngeal abscesses appear as the result of tuberculosis of the cervical vertebrae and a serious error is made when they are opened through the mouth. The proper approach is through the neck and this has long been considered a proper surgical procedure. When perforation of the abscess into the pharynx or oesophagus occurs the condition is much more serious because of the secondary infection. The patient should then be placed in the Trendelenburg posture and fed through a stomach tube or a gastrostomy opening.

The 11-year-old boy who was operated upon by the author at the clinic had been suffering for over nine months with tuberculous lesions in different parts of his body. A tuberculous abscess of the upper lid, another of the hand, and another of the abdomen had been drained. At the time of operation he had a swollen gland on the right side of the neck, at the bifurcation of the carotid, and a swelling in the retropharyngeal space which was evident when the mouth was open and could be felt with the finger. Through an incision $2\frac{3}{4}$ in. long along the anterior border of the sternocleidomastoid a

bulging mass posterior to the pharynx was exposed. In doing this the superior thyroid artery was ligated between ligatures while the large vessels in the carotid sheath were retracted laterally. The abscess was emptied of a considerable quantity of thick green pus, the cavity swabbed out, and the wound closed in layers. There was no secondary infection and the patient made an uneventful recovery. Section of one of the glands removed at operation showed evidences of caseating tuberculosis.

The second patient presented before the clinic had been operated two years previously. She had a tuberculous process involving the sixth, seventh, and eighth dorsal vertebrae and during the course of its treatment it became necessary to drain an abscess in the posterior mediastinum. This was done after an Albee operation to immobilize the spine. At the time of drainage the patient was suffering from typical symptoms of cord compression and was unable to walk. The mediastinum was approached through an incision about 4 cm. to the right of the midline and extending from the fourth to the ninth dorsal spines. The periosteum of the seventh rib was separated and a small piece of the rib was removed as close to the spine as possible. A forceps passed through the anterior periosteal covering entered the abscess cavity which was filled with thick, green caseous pus. The cavity was emptied and the wound closed in layers. Healing took place by primary intention and gradually the involvement of the spinal cord disappeared. At the end of six months the patient was able to walk. Tuberculous empyema of the right pleural cavity had developed, however, and required drainage and irrigation with Dakin's solution for several months before it became completely healed. Eight months after the patient was discharged from the hospital she was able to walk normally and had gained 15 lbs.

H. W. FISK, M.D.

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Dunhill, T. P.: Removal of Intrathoracic Tumors by the Trans-Sternal Route. *Brit. J. Surg.*, 1922, 2, 4.

The author reports three cases of intrathoracic tumors with roentgenograms and sketches of the steps in the operative technique. All of the tumors were removed by an incision splitting the upper half of the sternum.

Case 1. The patient was a man 35 years old. Physical examination showed cyanosis of the head, neck, and upper extremities. The right arm was $1\frac{1}{2}$ in. larger in circumference than the left, and the right forearm $\frac{1}{4}$ in. larger than the left. The skin of the right arm was dry and scaly. The patient stated that the right arm had not perspired for fourteen years. The grip of the right arm was more

feeble than that of the left. The pulses were equal. There was no pupillary inequality or tracheal tug. No visible pulsations of the chest were noted. From the apex to the third rib anteriorly and posteriorly on the right side there was dullness extending to the left sternal border. The breath sounds were stridulous on both sides. The left side showed greater expansion. The patient complained of dyspnoea on the slightest exertion. The blood count was normal and the Wassermann test negative. A diagnosis of hydatid cyst or teratoma was made. The X-ray confirmed the physical findings.

At operation performed under intratracheal anesthesia induced with gas and oxygen passed through detoxicated ether an osteoplastic flap was made which included the right half of the sternum from the suprasternal notch to the third intercostal space, together with the clavicle and the three upper

costal cartilages and ribs. In its upper limb the skin incision was the same as that for goiter. The tumor, which occupied the upper part of the thorax on the right side, was found to be crossed by the junction of the right internal jugular and the subclavian veins. Behind, it was in close relation to the ribs and adherent to the vertebral column. The lower part of the mass was in relation to the heart and great vessels. Its lower convexity was overlapped by the right lung. Because of the danger of tearing the great vessels the tumor was not removed. However, it was removed at a second operation performed through the same incision and with the same technique. The wound was closed without drainage. Four and one-half weeks after the second operation there was fluid in the chest. This disappeared in seven months with complete expansion of the lung. Recovery was uneventful. On pathologic examination the tumor was found to be composed of fibrous connective tissue. It weighed about 1 lb., 3 oz.

Case 2. The patient complained of stridor, shortness of breath, cough induced by exercise, and swelling of the neck. Examination revealed a goiter on the left side which was smooth and free from nodules. At operation the left lobe was found to extend behind the sternum, causing lateral pressure on the trachea. The attempt at removal was unsuccessful. Later the patient developed bronchitis. At a second operation the lower limits of the goiter could not be reached and there was profuse hemorrhage making it necessary to terminate the operation. Shortly after returning to his room the patient became dyspnoic and unconscious. Tracheotomy was attempted but the trachea could not be located. A mass was found and partly enucleated, this removal causing the symptoms to subside. The patient recovered but nine years later the symptoms recurred in an exaggerated form. The X-ray outlined the tumor. A third operation was performed under general anesthesia. The growth was flattened, displaced the trachea, and extended below the tracheal bifurcation. The sternum was divided along the third intercostal space on each side, the thoracic wall lifted up, and the tumor removed from a mass of adhesions. Recovery was uneventful. The mass weighed 11 oz. Pathologic examination showed it to be a spindle-celled sarcoma.

Case 3. The patient was a man 66 years old. An unsuccessful operation for the removal of an intrathoracic cystic goiter had been performed ten years before. The wound had drained continuously until six months before the patient consulted the author. Following cessation of the drainage dyspnoea developed. Operation was performed under local anesthesia. The sternum was split in the usual way and the tumor, which was embedded in adhesions, was removed by gentle blunt and knife dissection. Examination showed it to be composed of thick fibrinous tissue. No bacterial cultures were obtainable.

In conclusion the author states that infiltrating growths cannot be removed but when the X-ray examination and the clinical and physical findings rule out aneurism it is possible that the growth is a fibroma, a lipoma, a dermoid cyst, or a hydatid cyst. Cases reported in the literature show that dyspnoea ultimately causes death if the growth is not removed. The danger of malignant degeneration also justifies surgical interference.

S. J. HARRIS, M.D.

Melnikoff, A. W.: *The Surgical Routes through the Lower Border of the Thorax to the Organs of the Subdiaphragmatic Space* (Die chirurgischen Zugänge durch den unteren Rand des Brustkorbes zu den Organen des subdiaphragmatischen Raumes). *New York Arch.*, 1921, 1, 28.

This article is based on the author's examination of 167 cadavers. The surgical routes to the subdiaphragmatic space are divided into four groups. To the first group belong the methods in which the route through the pleura through the costo-diaphragmatic sinus is chosen. To these belongs transdiaphragmatic laparotomy which was first proposed by Roser in 1864, but not accepted because of its danger until later when it was tried out by a large number of surgeons (Langenbuch, Maydel, Finkenstein, Alexinski, Piquand, and others). The indications for this operation are: subdiaphragmatic abscesses, echinococci and other abscesses of the liver, abscesses of the spleen, tumors of the diaphragm, and other diseases and injuries of these organs. The eighth and ninth ribs are those most often resected. After their resection, the pleural layers must be sutured. The most dangerous complication is infection of the pleura. Special incisions and methods of forming flaps have been suggested (the methods of Postempski, 1889, Rydygier, 1892, Parlavacchio, 1893, Madelung, 1902, Biondi, 1903, and others).

To the second group belong laparotomies to which is added resection of the costal arch below the sinus. The originator of these methods was Lannelongue (1887). Later the procedures were adopted by Langenbuch, Djakonoff, Michelli, Mikulicz, and others.

To the third group belong extrapleural and extraperitoneal thoracotomy and the extrapleural route through the diaphragm (Nassiloff, Menard, Langenbuch, Parijski, Bessel-Hay, and others). These methods mobilize the margin of the sinus, as a rule resection of two ribs is necessary. These procedures are to be recommended for the treatment of subphrenic abscess. If the tenth and eleventh ribs are resected, a passage to the adrenal gland is opened. Among the disadvantages of the methods are their highly complicated technique and the danger of injuring the pleura.

The fourth group comprises the thoracolaparotomies which open the thoracic and abdominal cavities. These operations give the best and widest passage to the organs situated beneath the diaphragm. Thoracolaparotomy was first described by

Zeidler (1898) who used it in a case of injury to the spleen, but Terrier had already performed it at an earlier date. Melnikoff proposes to make it less traumatic by avoiding injury to the pleura by mobilizing and pressing aside its lower margin after resecting the costal cartilage. SCHLACK (Z).

McFarland, J.: Residual Lactation Acini in the Female Breast: Their Relation to Chronic Cystic Mastitis and Malignant Disease. *Arch. Surg.*, 1922, V, 1.

McFarland goes into much detail regarding the evolution and involution of the human breast, including the parenchyma and stroma. He discusses the interlobar, the interlobular, and the perilobular connective tissue, and the embryology, including the formation of the mammary lobule.

The secretion of fluid seems to begin almost as soon as the parenchyma begins to grow, but it is only after the fifth month of pregnancy that fluid may be expressed from the nipple. The colostrum cells seem to be the central cells of the newly formed acini, vacuolated by fat or filled with fatty molecules which escape from the future acini as they are in the process of forming lumina.

The evolution of the breast for the performance of its function and its involution after lactation are discussed. The general tendency of the mammary gland seems to be to return to its virginal condition in which it contains nothing but ducts.

Residual lactation acini are well recognized entities in cases of cancer of the breast, and occur in such close relationship to the cancer nests as to have led to the supposition that they are the starting point of the malignant growth. They are not infrequently designated the "precancerous stage of cancer." They are also frequently found in normal breasts.

The varying appearances presented in different cases and at different times by the residual lactation acini may be arranged serially as follows:

1. Single acini or groups of acini which differ from their fellows in the same lobule in that they escape involution and remain dilated.

2. Similar structural units remaining at the edges or near the periphery of lobules well advanced in the process of involution. They are lined with single or multiple layers of epithelial cells like those of the acini in general, though sometimes the cells are more columnar in shape and more crowded.

3. Similar units with all of the described qualities occurring in the perilobular tissue and seemingly independent of any lobules.

4. Groups of such units, the individual members of which are separated from one another by considerable intervals of fibrillar connective tissue.

5. Groups whose members are separated by narrow intervals consisting of scarcely more than a double row of epithelial cells.

6. Groups in which the contraction of the space crowds the epithelial cells and causes them to encroach upon the lumen, suggesting proliferation.

7. Groups in which distention of the space results in the formation of microcysts with various epithelial cell linings.

8. Groups in which the epithelial cells early acquire an eosinophilic staining quality and a relatively large size. Such a quality may characterize any of the groups previously mentioned.

9. Groups of any of the foregoing in which the atrophy of the intermediate partitions between the units causes their coalescence.

10. Groups of such kind in which the stumps of the partitions remain projecting into the common space and are covered with epithelium of the same quality as that which lines the spaces.

11. Cystic dilatation of such coalescent acinar spaces with gradual obliteration of the projecting stumps of the original interacinar spaces.

12. Cysts which may be several centimeters in diameter and are formed by the dilatation of single coalescent acini of any of the forms mentioned.

13. Irregular crevices or spaces in the tissue of the breast following atrophy of the interacinar partitions and collapse of the acini.

Thus the careful study of what is to be found in the normal breast in its various stages of involution and the arrangement of the peculiar modifications of the process of involution in series leads to the inevitable conclusion that the "Schweiszdruesen" of Krompecher, the "cystadenoma" of Schimmelbusch, the "senile parenchymatous hypertrophy" of Bloodgood, the "abnormal involution" of Warren, the "secondary epithelial hyperplasia" of McCarthy, etc., are no more than variations of the involutional process in which residual lactation acini appear in various conditions of retrogressive change.

The average age of the women in whose breasts residual lactation acini were found was 59 years; the youngest was 33 years, and the oldest 103 years.

The final confirmation of the theory as to the formation rests upon the demonstration of residual lactation acini in the breasts of women who have been pregnant and their constant absence from the breasts of others. This requirement it is impossible to fulfill because of the impossibility of determining accurately which of the women had and which had not been pregnant as some of them may have concealed or denied it.

The cases of normal breasts in which residual lactation acini were found at autopsy were those of twenty-three married women.

The presence of residual lactation acini being one of the criteria for the diagnosis of the condition variously described as chronic cystic mastitis, abnormal involution, cystadenoma, etc., as many of these surgical cases were assembled as possible and the percentages of married and single women determined. The results were: McManes Laboratory of Pathology, University of Pennsylvania, four cases; Laboratory of Surgical Pathology, University of Pennsylvania, twenty-six cases; Laboratory of Gynecological Pathology, University of Pennsylvania, eight cases; Laboratory of Surgical Pathology,

Medico-Chirurgical Hospital, Philadelphia, thirteen cases; Laboratory of the Lankenau Hospital, Philadelphia, fifteen cases; and Laboratory of the Presbyterian Hospital, Philadelphia, one case; total sixty-seven cases. These were divided thus: cases, sixty-seven; married women, fifty-three (79.1 per cent); single women, eight (11.94 per cent); civil status unknown, six.

The collection of all of the cases of cancer of the breast combined with the condition mentioned and the determination of the percentages of married and single women gave the following findings: cases, thirteen; married women, twelve (92.3 per cent); single women, one (7.7 per cent).

The breasts of the single women and those whose civil status is unknown were examined histologically for signs of antecedent pregnancy and lactation. There were no autopsy cases of normal single women, but there were eight benign surgical cases, one malignant surgical case, and six cases of women whose civil status was unknown, a total of fifteen.

In every one of these cases there were findings highly suggestive of postlactation involution, but as local disturbances sometimes stimulate the mammary tissue to develop large lobules like those of pregnancy—as in the surroundings of the encapsulated benign tissues studied with Bloodgood—it is not possible to be certain that these women were parous.

If residual lactation acini are of frequent occurrence in the mammary glands of women and have the origin ascribed to them, they ought also to occur in the mammary glands of animals. That they do can be easily demonstrated.

Papillary cystadenoma, chronic cystic mastitis, adenoma, and cysts are discussed.

There seems to be good reason for abandoning the idea that these residual lactation acini represent the first stages of tumor formation and also the belief that they may become malignant.

An examination of many breasts shows these appearances following involution: (1) occasional cysts the size of a pinhead; (2) numerous cysts the size of a pinhead scattered throughout the breast; (3) cysts the size of a pinhead collected in groups in some part of the breast; (4) cysts the size of a pea or marble occurring according to one of the described plans of distribution; (5) cysts similar in size and distribution to those described but filled with darker fluid, some reddish, some chocolate; (6) single or divided cysts the size of hen's eggs, which usually are filled with a clear serous fluid.

The article includes four tables and fifty-four illustrations of breast sections. The following conclusions are drawn:

1. The breasts of young virgins are composed of a stroma of pure fibrillar tissue which with increase of years shows an increasing mucinoid transformation. Toward middle life, adipose tissue begins to find its way into the stroma, until in old age the stroma is largely fatty. The parenchyma of the virgin breast always contains many cancelled

ducts. It may be without lobules, may contain only rudimentary lobules or, in rare cases, may contain well-developed lobules.

2. The mammary lobule develops in response to stimuli which may be either local or general. Pregnancy is its chief stimulus, and it seems to be under the influence of the latter only that full lactation hypertrophy is reached. The lobules arise through budding from the ducts as determined by the stimuli. At any stage of development the disappearance of the stimulus is followed by retrogression or involution of the lobule throughout the breast or locally.

3. The lobules constituting the parenchyma of the breast in different pregnancies are not necessarily the same. There is some reason to suppose that for each pregnancy there is a different crop of lobules.

4. Involution, the atrophy of lobules no longer needed, is a complicated process the details of which vary in different individuals, in the breast of the same individual, and in different parts of the same breast, according to local and general conditions.

5. One of the most important causes of modification of involution is retention of secretion. The effect of the latter is in proportion to its extent and distribution, and is without regularity.

6. The most striking result of retention of secretion is the appearance of residual lactation acini.

7. Residual lactation acini are harmless decadent structures having no importance with regard to the subsequent appearance of malignant disease.

8. The accumulated cellular and amorphous debris resulting from involution sometimes obstructs the outlets of the ducts and acini, leading to retention of secretion and exudation of fluid with cyst formation. The cysts may result from dilatation of the ducts or the residual lactation acini.

9. The cysts vary in size from that of a pinhead to that of a hen's egg and may be single or multiple, uniformly disseminated, or collected in groups. They usually have smooth walls and clear serous contents.

10. The pressure exerted on the surrounding tissue by the growing cyst gives rise to sensory disturbances which vary in intensity according to the firmness or softness of the stroma. In a breast with largely mucinoid or adipose stroma, they may occasion no symptoms.

11. The cysts are benign and harmless. If they become large their excision may be indicated to make the patient more comfortable.

12. Cancer cysts are not specific entities. They are the result of an accidental coexistence of cysts and cancer in the same breast. Original contiguity followed by increase in the size of each determines final continuity.

13. The so-called chronic cystic mastitis is not inflammatory and is not a pathologic entity; it is nothing but a result or at most a perversion of involution.

14. It would therefore be desirable to abandon the term, and call the condition "cystic disturbance of

the breast," or if it seems better to retain one of the older designations, to use that of Warren—"abnormal involution." The only difficulty lies in determining clearly when the process of involution can be said to become abnormal.

15. The term "adenoma" should be used only when speaking of encapsulated tumors of the breast. Parenchymatous increases of unencapsulated or diffused form are hypertrophies and not related to tumors.

16. There is no "cyst adenoma" of Schimmelbusch. The term is objectionable because it suggests the presence of a tumor where there is no tumor. The appearance on which the name depends is due to involution to which the name "residual lactation acini" has here been given, and can be easily found in one-fourth of all breasts which have lactated.

CARL R. STEINKE, M.D.

TRACHEA AND LUNGS

Herb, I. C.: Postoperative Lung Complications. *J. Am. M. Ass.*, 1922, lxxix, 339.

Lung complications occur most frequently after abdominal operations. They are caused not only by the anæsthetic, but also by one or more of the following contributory factors: a too-concentrated ether vapor, lowered resistance, general feebleness in the aged, embolic infarction, aspiration of foreign substances, weak heart action with low blood pressure producing hypostatic congestion, keeping the patient in the same posture too long after operation, general sepsis, cooling of the body surface, a decrease in lung expansion due to pain or tight bandaging, pre-existing bronchial or lung affections, exacerbation of focal infections, and possibly imperfectly cleaned anæsthetic apparatus.

Complications are reduced by due attention to these factors, proper preparation of the patient, careful administration of the anæsthetic, an aseptic technique and minimal traumatism of the tissues, and the postoperative conservation of the patient's vitality, i.e., prevention of heat loss, early semi-recumbent position, and prompt establishment of pulmonary ventilation through unhampered respiration.

In the Presbyterian Hospital of Chicago lung complications occurred in 107 patients, fifty of whom died. Pulmonary embolism developed in twenty-six cases, twenty-one of which terminated fatally. In practically all of these cases the condition followed an abdominal operation. Three patients had a pre-operative heart lesion. Ether was administered in twelve cases, gas-oxygen-ether in thirteen, and a local anæsthetic in one.

Lung abscesses developed in four patients, three of whom died. Two followed an abdominal operation and two followed tonsillectomy in an adult. One patient had a systolic blow at the aortic region before operation. Ether was given twice, gas-oxygen-ether once, and gas-oxygen once.

Pneumonia occurred in seventy-six cases and was responsible for a mortality of 63 per cent. Excluding twelve cases of outright terminal pneumonia and four cases in which metallic bodies were present in the bronchi, the mortality was 47.3 per cent. Most of the cases followed abdominal operations. Before operation twenty-five patients had some lung involvement, and seventeen had heart lesions.

The author directs attention to the frequency of cardiac and pulmonary pre-operative affections in patients who later developed pneumonia and in the cases of embolus and lung abscess. Lung complications occurred about three times more often in men than in women. The remarkable record is cited of 12,045 tonsil and adenoid operations with only four pulmonary sequelæ, viz., pneumonia and lung abscess in two cases each. G. R. McAULIFF, M.D.

HEART AND VASCULAR SYSTEM

Grigsby, G. P.: The Extraction of a Bullet from the Pericardium: with Case Report. *Internat. J. Surg.*, 1922, xxxv, 235.

Grigsby reports the extraction of a bullet from the pericardium in the case of a boy of 17 years. The bullet entered the chest after passing through the right arm and caused immediate pain and dyspnoea. Fluoroscopic examination disclosed it within or resting against the heart.

Under general anæsthesia an incision was made at the site of the original wound and extended 3 or 4 in. to the left between the third and fourth ribs. The pleura was accidentally opened when a cut internal mammary artery was tied. Enlargement of this opening revealed the opening in the pericardium through which the bullet had entered. Forceps were introduced and the bullet lying in the bottom of the pericardium was removed. The openings in the pericardium and pleura were then closed and the patient made an uneventful recovery.

H. A. MCKNIGHT, M.D.

Klose, H., and Strauss, H.: Contributions to the Surgery of the Heart and Pericardium; Suppurative Pericarditis and the Results of Its Surgical Treatment (Beiträge zur Chirurgie des Herzens und des Herzbeutels. I. Die eitrige Perikarditis und die Erfolge ihrer chirurgischen Behandlung). *Arch. f. klin. Chir.*, 1922, cxix, 467.

The conclusions arrived at by the authors are as follows:

1. The pericardium lies in direct contact with the chest wall, below the lowest segment of the body of the sternum and in front of the fifth and sixth costal cartilages. It varies somewhat in extent. The projection of its lower limit to the wall of the chest forms a plane running toward the left and downward at an angle of 15 degrees and passing through the middle of the xiphoid process. The terminal point of this plane on the right is 2 cm., and on the left 5 to 6 cm., from the margin of the sternum.

2. The function of the pericardium is, first, to ensure mobility to the heart in relation to the other organs of the thorax, and second, to give protection and support to the musculature, particularly that of the right heart, in case of over-filling.

3. It is doubtful whether the pericardium is sensitive to pain, but it certainly possesses sensibility.

4. The clinical frequency of suppurative pericarditis is one case to every 6,000 clinical cases of disease.

5. After the fourteenth year of age it occurs five times as often in males as in females; up to the fourteenth year, twice as often.

6. It appears with greatest frequency between the ages of 6 and 25 years.

7. Many cases of pericarditis have a preliminary stage which is non-suppurative; hence the advisability of early operation even in non-suppurative pericarditis if the exciting organism is pyogenic.

8. Suppurative pericarditis may involve the entire pericardium or circumscribed portions of it (encapsulated pericarditis).

9. In effusion the heart always lies near the anterior chest wall.

10. A certain diagnosis can be made only by exploratory puncture (the puncture should be made from the left costo-axillary angle). A probable diagnosis is possible from the etiology, the course of the fever, cardiac muscle symptoms, poor general condition, and precordial edema.

11. The authors distinguish between the normal pericardium, pericardial pleurisy, adhesive pericarditis, exudative pericarditis, pneumopericardium, and heart en cuirasse. Pericardial pleurisy can be distinguished in the roentgenogram. This is rarely true of adhesive pericarditis. Exudative pericarditis is sometimes revealed by the X-ray. Occasionally it is possible to distinguish pericardial effusion in organization. Pneumopericardium and heart en cuirasse are readily shown by the roentgenogram.

12. Without operation the prognosis is unfavorable, being usually hopeless for life. In the best results there will be adhesions with severe circulatory symptoms.

13. The treatment consists in prevention of adhesions and continuous drainage of the exudate.

14. Multiple puncture has resulted in cure in 10.4 per cent of the cases; intercostal incision, in 37 per cent; and wide exposure, in 56.6 per cent.

15. For wide exposure the Larrey-Rehn method is recommended.

16. The operation should be performed under local anesthesia, and before the pericardium is opened it should be treated with a 10 per cent cocaine solution.

17. The pericardium should be opened under positive pressure. In the after-treatment pneumopericardium is best prevented by Rehn's procedure.

18. Washing out, if necessary at all, should be done only with physiological salt solution.

19. Dressings should be changed under positive pressure.

20. In encapsulated pericarditis the portion of pericardium affected must be opened according to the situation in the individual case. It may be advisable to resect the involved part of the pericardium and then perform a plastic operation.

21. The indications are the same in the chronic, suppurative, encapsulated pericarditis.

22. In diffuse chronic suppurative pericarditis total extirpation of the pericardium may be necessary.

23. Conservative remedies should not be neglected.

GLASS (Z).

Klose, H.: The True Synechia and the Plastic Substitute for the Pericardium (Die reine Synechie und der plastische Ersatz des Herzbeutels). *Arch. f. klin. Chir.*, 1922, cxix, 455.

In experiments previously reported the author found that a substitute for the pericardium may be made by autoplasmic transplantation of flaps of fat, fascia, peritoneum, and omentum. The most suitable substitute is fatty tissue. In this article the disputed question as to how the implantation heals in is answered. Klose discusses first the former uses of autoplasmic fatty tissue transplantation, viz.: (1) the cosmetic plastic, as a substitute for degenerated types of tissue of mesoblastic origin; (2) the functional plastic (the production of neo-arthritis, the interposition of flaps of fat, the ensheathing of nerves, the ensheathing of tendons with fat to prevent adhesions, and to replace the dura in brain defects and traumatic epilepsy); and (3) fat transplants to serve as "living tampons" for hæmostasis. A rapid vascular anastomosis is decisive for the healing in of the transplant.

There are two views regarding the histologic healing. According to one, there is a local disappearance of the fat cells with proliferation and inflammatory changes resulting in regeneration. According to the other there is proliferation of fat cells. The "vacuole cells" are immigrant lymphocytes which take up fat—giant-cell formations. Lymphocytes have no relation to the regeneration of fatty tissue. Marchand therefore has decided in favor of the first view.

The author reports his observations on transplantations after fifteen and thirty-six days and on one preparation studied one and one-half years after the transplantation. In the latter, most of the tissue was exactly the same as that of the normal pericardium, only one area the size of a 3-mark piece suggesting the original graft by a more marked collection of fatty tissue. The metaplasia and connection of the superficial layer of fatty tissue with the fibrous layer of the pericardium ran parallel with the distribution and growth of the flap of fat. In the implant fifteen days old hollow spaces had been formed in the fibrous fatty tissue of the pericardium at the border of the implant, due to degeneration of the fatty tissue (fat cysts or fat blebs, according to Marchand). These were most marked around the fixation sutures. Such hollow spaces

are later replaced by regenerated connective tissue (a series of small trabeculae rich in nuclei). The author observed also small-celled infiltrations in certain areas (Marchand). There was an apparent transformation of these lymphocyte-like round cells into fiber-forming connective-tissue cells. Therefore the substitution of the hollow spaces was due to two processes, proliferation of connective tissue cells and proliferation of round cells. In the thirty-six day preparation larger islands of connective tissue were found in the trabeculae at the edge of the zone of implantation. These corresponded to the former hollow spaces in which fat was presumably deposited later in the connective tissue cells. Everywhere the author's attention was attracted by the close relationship between the new formation of connective tissue and the blood vessels, an early vascular connection to the bed.

Klose believes that healing is favored particularly by function and the growth-promoting properties of the pericardial fluid. Rapid covering of the fibrous layer by the bordering pericardial epithelium and rapid regeneration of the serosa were uniformly demonstrable in the author's cases.

GLASS (Z).

PHARYNX AND ŒSOPHAGUS

Wilkie, D. P. D., and Hartley, J. N. J.: Pharyngeal Diverticulum and Its Surgical Treatment: with a Record of Two Cases. *Brit. J. Surg.*, 1922, x, 81.

A pharyngeal diverticulum is an abnormal protrusion of the mucous membrane of the lower part of the posterior wall of the pharynx, between the oblique and transverse fibers of the crico-pharyngeus muscles. The sac passes down behind the œsophagus and the carotid sheath, lies between the prevertebral and pretracheal layers of the cervical fascia, and may eventually occupy the posterior mediastinum.

It occurs most frequently in men past middle life. There is no evidence that this type of diverticulum is congenital. The posterior diverticulum is essentially a herniation of the mucosa through the musculature of the pharynx. One or both of two factors must operate, viz., an abnormal increase of intrapharyngeal tension, and local weakness in the posterior pharyngeal wall. In exceptional cases an

organic stenosis has been present. In the majority the primary cause appears to be incoordinate action between the propulsive and sphincteric elements of the pharyngeal muscle.

In a number of cases there has been a history of difficulty in swallowing for many years before the typical symptoms attributable to a pouch were noted.

When a pouch has formed, the most characteristic symptom is regurgitation of food. Associated with this there are often gurgling noises which are a source of annoyance. The initial difficulty in swallowing becomes more pronounced, the sac enlarges, and the ingestion of a meal is often looked forward to with dread. Before anything passes down the œsophagus, the patient must first fill the pouch, and any misadventure may cause regurgitation of its contents. The patient then experiences a choking sensation, bends forward, and empties the pouch, and the ordeal must be repeated. Only by exercising great caution when the pouch has been filled can the patient succeed in swallowing sufficient food for nutrition.

In the diagnosis radioscopy has replaced all other special methods.

The treatment must be directed to both the cause and the effect and should consist of dilatation of the stenosis, whether it is organic or functional, and extirpation of the sac. For very early cases Bevan recommends the passage of bougies to open up the pouch. It is not unlikely, however, that the beneficial effect of this measure is due to dilatation of the pharyngeal muscle.

Removal of the sac is to be regarded as a procedure fraught with danger. The patient is usually old and debilitated. The sac contains infective organisms, communicates with a septic canal, and lies in a cellular plane ill-fitted to deal with infection and continuous with the posterior mediastinum.

A primary gastrostomy has been strongly advocated by some surgeons, and is undoubtedly advantageous in late cases.

The one-stage operation is ideal, but not devoid of danger, the chief risk being leakage and cellulitis of the planes of the neck.

The least dangerous procedure is the modification of the two-stage operation in which a submucous excision of the sac is done in the second stage.

H. A. McKNIGHT, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Sigwart, W.: Ether Treatment and Prophylaxis of Peritonitis (Aethertherapie und Prophylaxe der Peritonitis). *Muenchen. med. Wchnschr.*, 1922, lxi, 500.

In a series of experiments in which Sigwart determined the bactericidal effects of ether on various micro-organisms, particularly streptococci and an-

thrax bacilli, he found that bouillon cultures of streptococci as well as of anthrax bacilli were killed in a short time by ether vapor passed over the bouillon, and that ether vapor passed over agar-plates destroyed in four minutes all bacteria to a depth of 0.50 to 0.75 cm.

In fifteen cases of pelvic peritonitis subjected to surgical treatment and in which there occurred during the operation more or less extensive inundation

of the lower abdominal cavity by bacteria, ether was poured into the abdominal cavity as a prophylactic measure. Drainage was established only in two cases. Shortly before the closure of the abdominal cavity, after the bed of the wound, which in most of the cases was very extensive, had been most carefully covered with peritoneum, from 50 to 100 c cm. of ether was poured into Douglas's pouch and over the neighboring portions of the intestines. The abdominal cavity was then quickly closed to prevent the escape of the ether vapor. All of the fifteen cases were cured. In eight, however, there were disturbances of the process of wound-healing.

Besides its bactericidal effect, ether has an undoubted stimulating effect on intestinal peristalsis. Because of this stimulation, the author is unable to believe that it favors the formation of adhesions. Neither in the previously reported cases of cured diffuse peritonitis nor in the cases here reported, in which ether was used prophylactically, were any intestinal symptoms observed which were necessarily referable to severe adhesions caused by the ether.

This use of ether, however, may be followed by shock immediately after the ether is poured in. In the cases reported the author witnessed marked symptoms of shock on a number of occasions. This complication he attributes to the absence in these cases of a safety valve such as was present in the cases of diffuse peritonitis in which the excess of ether vapor escaped through the drainage tube. An additional reason may be that the present-day commercial narcotic ether is not as pure as that used formerly. The ether employed contained a relatively large amount of alcohol, which causes severe shock when brought into contact with the peritoneum.

BOET (Z).

GASTRO-INTESTINAL TRACT

Judd, E. S., and Rankin, F. W.: *Hæmangiomata of the Gastro-Intestinal Tract. Ann. Surg.*, 1922, LVII, 28.

Attention is called to the statements of Rokitsansky, Virchow, and Thoma as to the origin of hæmangiomata. All agree that at times trauma can be demonstrated as a factor, and that the tumors arise from pre-existing blood vessels and are congenital in origin. Hæmangiomata are endothelial tumors composed of capillaries or cavities; they may be vascular or made up almost entirely of endothelial elements. As a rule the process is localized and metastasis rarely occurs. Complications are due to encroachment on vital structures or erosion of their walls producing hæmorrhage. In two cases of hæmangioma of the bladder seen at the Mayo Clinic, life was endangered by extension. Symptoms may be present from early life, but the patient may not seek relief until obstruction or hæmorrhage occurs.

Angiomata of the stomach are pedunculated and freely movable. As a rule they are found on the

posterior wall or the lesser curvature and are covered with gastric mucosa. Ulceration is rare, but may be the source of profuse hæmorrhage. Distress from the tumor is due to hæmorrhage or obstruction.

The author reports three cases of hæmangioma of the stomach and one of the duodenum. The most striking clinical feature of these is the excellent result following surgery. In two cases the roentgen-ray examination and the patient's age indicated a malignant lesion in an inoperable stage and location. The patient's general health, normal acid values of gastric secretion, and good digestion favored the possibility of a benign lesion. In the other two cases the patient's age and the duration of the symptoms favored a benign lesion. A knowledge of these lesions and a differentiation from various clinically similar neoplasms is of prognostic importance.

Finsterer, H.: *The Treatment of Spasm of the Cardia and Stenosis of the Cardia: (Esophago-Gastro-Anastomosis. Zur Therapie des Cardiaspasmus und der Cardia-Stenose. Esophago-Gastroanastomose). Wien. klin. Wchnschr.*, 1922, XXXV, 471.

Clinically light cases of spasm and stenosis of the cardia may be treated by dilatation with Gottstein's sound, but in severe cases the method of choice is Heller's extra-mucous plastic operation or esophago-gastro-anastomosis. Finsterer has employed the second method with success in two cases and considers it the better of the two. The danger of insecurity of the anastomotic suture is not great.

Only cases of true spasm of the cardia are suitable for Heller's operation—not cases of so-called hypertonic protrusion of the annular muscle. In cicatricial stenosis of the cardia or adhesions in the vicinity there is danger of recurrence after Heller's operation. A disadvantage of esophago-gastro-anastomosis is the possibility that food may be regurgitated when the recumbent position is assumed.

PEIFER (Z).

Deaver, J. B.: *The Surgical Treatment of Perforated Gastric and Duodenal Ulcers. Am. J. Surg.*, 1922, XXVI, 161.

Excision of chronic gastric ulcer is being advocated by surgeons of experience as a more certain method of securing a permanent cure than gastro-enterostomy. Its use in the treatment of acute perforating ulcers has been occasionally reported in the literature. The peritoneum is able to protect itself from a considerable degree of infection. Moreover, it has been shown that the exudate from the early cases is relatively, if not actually, sterile, being a response to the chemical irritation of the gastric and duodenal contents rather than the result of bacterial infection. In the very early stages, peritonitis is not a contra-indication to these radical operations.

The author's experience convinces him that patients upon whom a primary gastro-enterostomy is done recover more uniformly and with less post-operative trouble than those treated by suture alone.

It has been held by some surgeons that perforation heals the ulcer and for that reason gastro-enterostomy is useless. Deaver believes gastro-enterostomy is useful because it gives a large percentage of primary recoveries, and because he has found that perforated ulcers are not uniformly cured by the perforation. He advocates immediate posterior gastro-jejunostomy in the treatment of perforating ulcers of the stomach and duodenum. Simple closure of an ulcer close to the pylorus will almost certainly result in temporary obstruction and at times in permanent stenosis after cicatrization. This introduces danger into the convalescence. Moreover, in a few cases in which the duodenum is extremely friable and the perforation cannot be perfectly closed, there is apt to be temporary leakage of bile and duodenal contents. In such instances the anastomosis has, without doubt, saved life.

I. W. BACH, M.D.

Mayo, W. J.: Progress in the Handling of Chronic Peptic Ulcer. *J. Am. M. Ass.*, 1922, lxxix, 19.

Although the internist and surgeon are still far apart in their estimation of the necessity for surgical treatment of peptic ulcer and of the value of such treatment, the lines of divergence are converging. Both agree that the indications for surgical intervention are chronic mechanical obstruction, repeated hæmorrhages, and acute or chronic perforation.

In the development of peptic ulcer there are periods of exacerbation and improvement. Therefore care must be exercised in concluding that medical management alone has been the factor ameliorating the symptoms. Careful medical management, however, usually results in great, and even permanent improvement. Successful medical management presupposes the hospitalization of the patient for a number of weeks under a rigid and prolonged regimen and the continuance of this regimen after he leaves the hospital. Prolonged treatment is out of the question for the great majority of patients, and even under the most favorable conditions medical treatment fails to cure permanently.

It has been found that in more than 90 per cent of duodenal ulcers and more than 80 per cent of gastric ulcers satisfactory results are obtained by a single operation. With increasing knowledge and experience the practice of excising certain types of duodenal ulcers and of combining the excision with the excellent pyloroplasty of Finney is becoming more general. Perhaps one of the great merits of the Finney pyloroplasty is the change it effects in mechanical conditions; the duodenum is drawn down and sutured to the greater curvature of the stomach at the pyloric end, thus permitting not only ready emptying of the stomach, but also alkalization of the former ulcer area. Recurrence of an ulcer after the Finney operation is rare.

There are two causes of failure of surgery to relieve in cases of peptic ulcer: (1) functional dis-

turbances due to subsequent faulty dietary conditions, which the internist can relieve, and (2) mechanical disturbances due to faulty surgical methods, which can be relieved by secondary surgical procedures.

Before the development of surgery of the abdomen 96 per cent of peptic ulcers were believed to be in the stomach. As a matter of fact, only about 25 per cent are so situated. Ulcer was believed to be a disease much more common in females than in males, while in reality its incidence is but little over 25 per cent in women. The preponderance of males over females with duodenal ulcer is perhaps due partly to the fact that in the female the first portion of the duodenum is more nearly transverse than in the male so that the upper duodenum is more or less constantly bathed by the alkaline juices of the bile and the pancreatic secretion.

Roentgenograms correctly interpreted have been extraordinarily valuable in the diagnosis of peptic ulcer. Carman and his associates diagnosed by the roentgen ray 523 cases of duodenal ulcer in which operation was performed; the diagnosis was confirmed in 500 cases (95.6 per cent). During the same period the roentgen-ray diagnosis of gastric ulcer in 125 cases was confirmed at operation in 122 (97.6 per cent); eight of the ulcers, however, proved to be malignant. Also in the same period, eight cases of gastrojejunal ulcer were diagnosed, of which six (75 per cent) were confirmed at operation. In addition 7,868 cases were diagnosed as negative for duodenal, gastric, or gastrojejunal ulcer; exploration was performed in 631 and the absence of ulcer was verified in 587 (93.1 per cent).

Pathologically duodenal ulcers are entirely different from gastric ulcers. Chronic gastric ulcers always have craters, are of the callous type, and penetrate all of the coats of the stomach to the peritoneum. In the duodenum ulcers are usually erosions with fissures or cracks extending down through the musculature to the peritoneum.

The average operative mortality from all causes in cases of duodenal ulcer, including the acute and chronic cases, is under 2 per cent. As the part of the duodenum usually involved is merely the vestibule of the small intestine, permanent interference with function is slight. The ulcer is not associated with cancer liability.

The average mortality in the operative treatment of cases of gastric ulcer, including the acute and chronic cases, is about 3.5 per cent. There is a definite cancer liability in the years to follow. Cancer of the stomach rather often originates from ulcer of the stomach or perhaps from the same causes as those that produced the ulcer. H. W. FINE, M.D.

Sippy, B. W.: The Relative Value of Medical and Surgical Treatment of Gastric and Duodenal Ulcer. *J. Am. M. Ass.*, 1922, lxxix, 26.

Judgment as to the relative value of medical and surgical treatment of peptic ulcer depends on a number of factors, chief among which are: (1) the

conditions and complications attending the ulcer; (2) the character of the surgical treatment to which the patient is to be subjected; (3) the skill and experience of the surgeon; and (4) the efficacy of the type of medical treatment employed, especially in combating or removing conditions retarding or preventing the healing of an ulcer. A careful analysis of these factors will expedite a decision as to the method of treatment which could be employed to the best advantage.

The surgical treatment comprises two methods of attack. The one, represented by gastro-enterostomy, leaves the ulcer area unchanged, but tends to remove complications and distressing symptoms and therefore to bring about conditions favoring the healing of the ulcer. The other makes a direct attack on the ulcer, attempting to reduce it in size or to remove it. Under certain conditions the two methods are combined. Of the cases of peptic ulcer treated surgically, evidence has been practiced in relatively few, among other reasons being the fact that not infrequently the ulcer cannot be removed because of inaccessibility due to its location, adhesions, or other unfavorable conditions.

In recent years there has been a growing tendency among the most skillful surgeons to adopt the direct method of attack, employing such measures as excision of the ulcer with the knife or cautery, reducing its size by means of the cautery or suture, resecting the ulcer-bearing portion of the stomach or duodenum, and incorporating removal of the ulcer in pyloroplasty operations. Partial gastrectomy in the hands of men like Moynihan carries a mortality of 4.7 per cent. Considering the fact that the vast majority of patients with peptic ulcer treated surgically are operated on by surgeons of much inferior training, we must hesitate to advise surgical treatment for the relief of peptic ulcer unless the conditions are such as to render operative measures necessary or unless the operation can be performed by a surgeon highly skilled in gastric surgery.

Medical treatment can contribute directly to the eradication of the ulcer only by employing such measures as promote its healing. Likewise, when the surgical treatment of the disease does not include direct removal of the ulcer, eradication of the ulcer by the surgical measures employed must act by establishing conditions which promote healing. Therefore except in those instances in which surgical treatment includes removal of the ulcer, both surgical and medical treatment contribute directly to the eradication of the ulcer only by promoting its healing. There are two essential factors contributing to the development and chronicity of the clinical type of peptic ulcer: (1) local malnutrition or necrosis of the mucous membrane or walls of the stomach or duodenum; (2) the destructive action of the digestive gastric juice on local areas of malnutrition or necrosis.

Well-nourished and otherwise undamaged tissue fully resists peptic digestion even if raw surfaces

are exposed. The rapid healing of the usual experimental ulcer is thus explained. Unquestionably peptic ulcer developed and attended by few or no symptoms heals without treatment in an enormous number of cases. The healing of peptic ulcer is retarded or prevented by the eroding action of the gastric juice proportionately to the diminution in the vitality of the tissue exposed in the ulcer and the constancy with which digestive gastric juice is in contact with the ulcer. Gastric juice is absolutely inert as an eroding agent in the absence of free hydrochloric acid. The beneficial effect of gastro-enterostomy in bringing about a cure of gastric and duodenal ulcer is due to a reduction in the free hydrochloric acidity from 14 to 30 per cent, and more particularly to the accelerated emptying of the stomach which reduces the duration of gastric juice contact.

The higher the grade of obstruction, the greater the benefit of operation. In high-grade obstruction the contact of the irritant in the gastric juice is reduced from twenty-four hours to between nine and fifteen hours each twenty-four-hour period. If the healing of obstructive ulcer is so greatly favored by such a limited reduction in the duration of peptic gastric juice contact, Sippy believes it is logical to conclude that the healing of the ulcer is much more greatly favored by destroying virtually all peptic activity by the ingestion of alkalis in carefully regulated doses. He has demonstrated that as a result of the constant protection of the ulcer from digestive gastric juice contact, one of the most common and serious complications of peptic ulcer—pyloric obstruction—is apt to yield rapidly. In approximately 85 per cent of all cases of pyloric obstruction of all grades the obstruction is overcome during the first three weeks of treatment to such a degree that a full meal of ordinary food is discharged through the pylorus within the normal seven-hour period. Such cases are presumably due to spasm of the pylorus, acute inflammatory swelling, and rarely to local peritonitis, while in the remaining 15 per cent the obstruction is due to actual tissue-narrowing which in approximately one-half of the cases cannot be completely overcome without surgical interference. Following gastro-enterostomy for the relief of pyloric obstruction greater efficiency may be secured and the end-results improved by including accurate neutralization of the free hydrochloric acid in the after-treatment of the case.

As to the relative value of the two methods, Sippy believes that in the absence of certain conditions and complications, such as are recognized by all as requiring immediate or ultimate surgical relief, the skill of the surgeon who is to perform the operation and the type of medical treatment to be employed should be the important factors influencing the choice of procedure in a given case. The surgical indications outlined by Revan may be very greatly broadened if the patients with peptic ulcer are not to be placed on a systematic and accurate medical treatment.

The results that may be obtained by efficient neutralization of free hydrochloric acid in the treatment of ulcer may be stated as follows:

1. The pain is completely controlled.
2. Excessive night secretion is controlled.
3. Hemorrhage ceases, occult blood disappears from the stool.
4. Perforation occurs very rarely if at all.
5. The penetrating type of ulcer is rapidly influenced; the defect as shown by the X-ray rapidly disappears. If the defect is not definitely influenced during the first two weeks of treatment the patient should be operated on, if a skilled surgeon is available.
6. Cases of ulcer of the stomach and duodenum in which healing does not occur after surgical procedures are relieved at once of the distressing symptoms so that healing may occur eventually.
7. The ulcer becomes healed.

It is generally agreed that except in those cases in which surgical treatment is clearly indicated, medical treatment should be given a thorough trial before resort is had to operation. Sippy believes that if his treatment is applied without modification, the necessity for surgical treatment of peptic ulcer will be greatly reduced. O. S. PROCTOR, M.D.

Brown, T. R.: The Relative Roles of Medical and Surgical Treatment in Gastric and Duodenal Ulcer. *J. Am. M. Ass.*, 1922, lxxix, 29.

Regarding the etiology of peptic ulcer Brown mentions almost all of the known facts and theories. The usual explanation of the condition is still that its immediate cause is the digestion of a certain portion of the mucosa by the proteolytic enzyme of the stomach, or its destruction by the corroding action of the hydrochloric acid. As to the contributing causes, disturbance of circulation and consequent lowering of the vitality seem to be the most plausible factors in many cases, but whether this is due to thrombi or emboli or constriction of blood vessels is often unknown.

It is well known that experimental ulcers usually heal rapidly and spontaneously, but their healing is distinctly retarded by chronic irritation from food, by an artificially produced anemia, and, according to some, by the administration of hydrochloric acid. Among other factors retarding healing are mentioned instability of the sympathetic and vagus systems, definite changes in the nerves themselves, disturbances in the motor sphere, peculiarities in the form of the stomach, functional or organic abnormalities in the vascular and nervous systems, the action of bacteria, and infectious emboli causing congestion which decreases the vitality of the tissues and their digestion by the gastric juice.

There is nothing characteristic regarding the symptoms. In many cases the first symptom is hemorrhage or perforation. On the other hand, ulcer has been found absent in cases with classic symptoms. The most valuable clinical symptom Brown believes is periodicity of the attacks noted

particularly in the spring and fall and rarely in summer. In all cases the diagnosis must be based on numerous findings: vomiting, hemorrhage, the appetite, sensitiveness to pressure, dorsal pain points, evidence of hyperacidity or hypersecretion in the fasting stomach, evidence of pyloric obstruction in the fasting stomach, occult blood in the stools, and the X-ray findings. That the diagnosis is often incorrect is proved by the subsequent history of cases or by surgical treatment. Diseases of the gall-bladder, renal crises, ureteral calculus, appendicitis, carcinoma, conditions due to intestinal parasites, neuroses, visceroptosis, the gastric crises of tabes, and epigastric hernia all present similar symptoms and must be considered in the differential diagnosis.

Brown believes that in a disease with such a varied etiology the treatment also must be varied. He regards it as very important that each case be individualized. A careful analysis of the patient's history and a careful physical examination to determine, among other factors, the presence or absence of focal infection, the condition of the circulatory and nervous systems, and the presence or absence of psychic influences in the case are of importance.

Medical treatment should be tried first, chief reliance being placed on rest and diet. Rest of the nervous system and the mind is just as important as bodily rest. The diet must be non-irritating, furnish a sufficient number of calories, cause minimal gastric secretion, and yet neutralize as much acid as possible. If the patient is strong, or if the bleeding is marked, a few days of absolute starvation with a rectal drip to relieve thirst and to lessen acidosis is advisable. The diet should not be restricted to any one special scheme, but suited to the findings in the particular case and the taste of the patient. It is far better to satisfy a patient with cereals than to disgust him with an exclusive milk and cream diet. Whether to feed at one- or two-hour intervals must also be decided in each case. If the patient does not respond within two weeks to rest, simple drugs, diet, and the local application of heat or cold, the diagnosis is incorrect or there are definite complications. The use of alkalies is again largely a question of individual feeling, most patients getting along better with them. If one of the factors in the ulcer picture is an irritable vegetative nervous system, belladonna is the most valuable drug we have and should be given in maximal doses.

In perforation or gross obstruction which represents organic stricture, or the tendency to repeated hemorrhages, or malignant change, surgery is the only rational procedure. In cases of chronic ulcer without obstruction and without repeated extensive hemorrhage, neither method of treatment has been sufficiently successful to warrant the exclusion of the other. In such cases Brown believes in trying medical treatment first. With regard to the complications of ulcer he feels that the treatment of extensive hemorrhage should always be medical; that the appearance of tetany after preliminary

treatment with calcium acetate or ammonium chloride given intravenously indicates immediate surgery to relieve the obstruction; and that the only justification for duodenal feeding is vomiting which cannot be controlled by other means.

Surgery has not been universally successful in many of the cases as shown by the shift of surgical opinion as to the operation of choice: gastro-enterostomy, pyloroplasty, cauterization, excision, resection, the Polya operation. None of these operations will bring about a condition approximating the normal; each may be followed by certain postoperative complications such as jejunal ulcer, vicious circle, and recrudescence of the ulcer symptoms. Following gastro-enterostomy there may be also intestinal indigestion and following the other procedures obstruction or the formation of adhesions. Brown has found, however, that in the chronic condition, even without obstruction, surgery has been more effective and more permanent in its results in the majority of cases than medical treatment, especially in cases in which pyloroplasty, resection, or the Polya operation have been done.

All cases must have careful postoperative treatment in order to prevent the formation of adhesions, the development of a new ulcer, or the recrudescence of the ulcer which it has been impossible to remove. There should be far closer co-operation between the clinician and the surgeon in the study as well as the treatment of these cases, and the treatment should be a question of medicine and surgery rather than medicine versus surgery.

O. S. PROCTOR, M.D.

Bevan, A. D.: The Relative Value of Surgical and Medical Treatment of Gastric and Duodenal Ulcer. *J. Am. M. Ass.*, 1932, lxxix, 22.

This paper reports a summary of the conclusions reached by Bevan on the subject of peptic ulcer, and represents the experience of a decade or more devoted to study of the condition.

Summarizing his knowledge of the etiology the author states that peptic ulcer is produced by at least three or more factors. These he expresses in the form of the following equation: $X + Y + Z =$ peptic ulcer. X represents the gastric juice with its power of digesting devitalized tissue. Y is an area of lower local resistance due to injury or a lesion of the blood vessels of the mucous membrane. Z is the decrease in the general organic resistance. The latter may be due to a number of quite different causes, such as anemia, general poor nutrition, and increased nervousness and nervous strain, especially worry. The starvation in the central European countries was followed by a great increase in the number of cases of peptic ulcer.

With regard to the importance of local infection from the teeth and tonsils, the gall-bladder, extensive skin infection following a burn, etc., Bevan states that this may cause acute ulcers of the stomach or duodenum through hematogenous infection or septic embolism of a vessel of the mucous mem-

brane. These acute cases heal promptly or result fatally. He does not believe that it is the ordinary cause of the clinical cases of ulcers of the stomach and duodenum and concludes that infection by pus organisms plays a minor rôle in the causation and persistence of peptic ulcer.

The sensations experienced by the patient may be described as a discomfort or distress, or an actual pain. When local anesthesia is used the stomach and duodenum can be handled with little or no distress to the patient; the stomach and intestines can be sewed and the end of the stomach can be burned off with a cautery without causing any sensation. Pulling on the viscera, however, can cause great pain. The most frequent cause of pain in the abdominal cavity is distention of some viscus. Such, for example, is the colic following blocking of the cystic duct, or blocking of the ureter by a stone, or the severe pain resulting from the obstruction of the bowel in ileus. Tissues which are the site of an inflammatory process are much more sensitive than the normal tissues in the abdominal cavity.

Bevan believes that pain in peptic ulcer occurs under three conditions: (1) intravisceral tension due to distention with gas and food and often associated with obstruction or spasm preventing normal emptying of the stomach or bowel; (2) irritation due to gastric juice on the raw surface of the ulcer, especially if it is true that tissues in this pathologic condition are more sensitive than normal tissues; and (3) the lighting up of an acute inflammatory process in and about the ulcer. This pain may closely simulate gall-stone colic.

The author's theory as to the healing of ulcers is also expressed by the formula: $X + Y + Z =$ varicose ulcer. X represents the obstruction of the return circulation; Y, usually some slight traumatism of the skin; and Z, the general resistance of the patient. A culture of the secretions of the varicose ulcer will show various kinds of pus organisms. A close parallel may be drawn between varicose ulcer and peptic ulcer as pus organisms are present in both. In the author's opinion, however, these organisms do not play an important part, either in the production of the ulcer or in preventing wound healing although occasionally they may be the cause of the lighting up of an acute infection.

If the patient be placed at absolute rest in bed, in a recumbent position, and the affected leg is elevated, the factor X, the most essential in the production and maintenance of varicose ulcers, is done away with. Usually the ordinary varicose ulcer will heal in a limited period under these conditions. In the healing process the bacteria disappear and complete epidermization occurs. With improvement in the general condition healing becomes more rapid.

There are some exceptions to this rule. In callous ulcers there is a rim of dense scar tissue around the ulcer and in the crater of the ulcer itself. Here, healing is very slow and it may be necessary to cut away the callous margin and base. Another type

is the old chronic ulcer with such changes that the tissues have apparently lost their power of repair.

Bevan believes that much the same things happen in the stomach and duodenum as in the leg. If the peptic ulcer can be placed under conditions eliminating the essential causes which produced and maintain it, healing will take place in the great majority of cases. A jejunostomy alone, insuring absolute rest of the stomach and duodenum, will cure almost any peptic ulcer. Next in importance is the neutralization of the acid gastric juice. The patient must be placed under the best possible hygienic conditions. In the large majority of peptic ulcers, rest in bed, rest of the stomach and duodenum, neutralization of the gastric juice, and improvement of the general condition will result in complete healing.

There are definite exceptions, however, as old callous ulcers of the stomach or duodenum, like callous ulcers of the leg, are refractory especially when they are situated so as to impair the function of the stomach and duodenum. In cases of varicose ulcer the interference with the return circulation may be remedied by the application of a bandage or a surgical operation removing a segment of the veins. To prevent recurrence of peptic ulcer attention to the diet and the patient's general condition is necessary to eliminate the trauma of acidity and food, the nervous tension, and the general conditions responsible for the ulcer in the first place.

The surgical treatment includes operations for perforation, for pyloric obstruction, for hour-glass stomach, and for the removal of the ulcer. It includes also gastro-enterostomy and jejunostomy. The ulcer may be excised by one of several methods and the patient cured by an operation which carries a certain amount of risk, varying enormously with the skill and experience of the surgeon. Ninety per cent of ulcers of the duodenum and 50 per cent or more of ulcers of the stomach may be cured by gastro-enterostomy, which carries a certain risk to life, probably less than 2 per cent in skilled hands, and a risk of jejunal ulcer in 3 per cent of the cases.

As to the manner in which gastro-enterostomy cures peptic ulcer, Bevan states that its greatest value is in its safety-valve action, the relief of tension. In duodenal ulcer, after the gastro-enterostomy has been performed, there is a spasm of the pylorus causing all material to pass through the new opening. The ulcer is thus enabled to heal rapidly, and after healing has occurred the pyloric spasm relaxes in whole or in part and the gastric contents begin to take the normal course through the pylorus. In cases of gastric ulcer the relief from gastric tension, the more free emptying of the stomach, and the neutralization of the gastric juice by the bile and pancreatic juice, furnish the logical explanation. In jejunostomy the placing of the stomach or duodenum at rest accomplishes the result. The method is not very practical, however, and should be reserved as a preliminary procedure in certain severe cases.

Excision of the ulcer seems to be the ideal treatment but its risk is considerable. It is the operation

of choice when it can be performed without great risk and without resulting deformity. The Billroth excisions 1 and 2 have proved very successful in the hands of a few expert surgeons. Their mortality is only 1 to 2 per cent. These are extensive resections of the stomach and duodenum, but accomplish four definite things: (1) removal of the ulcer; (2) removal of the pylorus and the element of pylorospasm; (3) removal of a large secreting area of the stomach and diminution of the free hydrochloric acid; and (4) removal, with the ulcer area, of a possibly existing or a potential carcinoma.

Bevan states that if he, himself, had a peptic ulcer he would try medical management first, that his chances of cure would be 80 or 90 per cent, and that he could keep well if he took reasonable care of himself. In case of repeated hemorrhages from a duodenal ulcer, he would want a gastro-enterostomy. If in spite of good medical management, relief were not complete, he would desire a gastro-enterostomy. If in spite of good management the symptoms still persisted, he would want the benefit of an exploratory operation. If at operation a callous ulcer were found on the gastric side of the pylorus, he would want the benefit of a second Billroth operation. If he had an operation for ulcer of any type he would want medical ulcer management as part of the after-care to reduce to minimum chances of jejunal ulcer. O. S. PROCTOR, M.D.

Mayo, C. H.: *The Cause and Relief of Acute Intestinal Obstruction*. *J. Am. M. Ass.*, 1922, lxxix, 194.

The high mortality attending ileus can be lowered by early diagnosis, judgment, and prompt action when the condition is relievable. Obstruction due to the various types of hernia is not so common as formerly because these conditions are more frequently repaired in the elective period and the danger of prolonged taxis has become better appreciated. Gangrene occurring in the obstructed segment produces a powerful toxin. True intra-abdominal ileus due to bands, volvulus, or openings in the mesentery or in the diaphragm are more serious because of the added difficulties of diagnosis.

Another form of toxin occurs in the more rapidly fatal high intestinal obstruction which is produced by the action of a pancreatic ferment. Obstruction just below the duodenum causes alkalosis with tetany and the vomiting of green material which has little odor until just before death. Obstruction lower in the tract is manifested by vomiting of foul fluids. These should be removed at frequent intervals by the stomach tube. High obstruction should have prompt surgical relief, at which time drainage of the paralyzed segment of bowel is best done by enterostomy. The lower the obstruction in the intestinal tract the less serious the toxæmia.

Colonic obstructions are most commonly due to malignancy, and usually in these cases temporary periods of partial obstruction precede the complete obstruction. Time should not be lost in efforts to

make an exact diagnosis, surgical measures should be instituted at the earliest moment. The dangers of an unnecessary exploration are trivial compared with the grave risks of delay.

Patients requiring relief of obstruction of the large bowel are usually in *extremis* and the operation should be limited to a life-saving procedure such as colostomy or enterostomy. The complete operation of resection is rarely justifiable as it doubles the operative risk. The nature of the obstruction should be determined at operation and the advisability and nature of future operation decided from the cause of the obstruction. In malignant cases the presence or absence of metastases in other viscera should be determined. It may be difficult to differentiate diverticulitis from malignancy. Patients with post-operative obstruction too often suffer from delay in the hope that the condition will clear up. The stomach tube becomes a valuable test in determining the state of affairs in obstruction.

If exploration is done early in postoperative obstruction freeing of adhesions will suffice, but if it is delayed, ileostomy or jejunostomy is indicated. When done early, exploration may be made through the original incision, but after five days it is advisable to make a new incision to avoid spreading infection from the primary wound. In the presence of infection the enterostomy tube should be brought through the omentum and through a separate opening in the abdominal wall to allow better closure of the working incision. Local anesthesia is the anesthesia of choice. A. G. BURNES, M.D.

Gutiérrez, A.: Interpretation of a Duodeno-Pancreatic Anomaly (Anomalia duodeno-pancreatica: su interpretación). *Semana med.*, 1922, LXII, 499.

In the examination of the abdomen of an adult cadaver the author discovered an interesting duodeno-pancreatic anomaly. The duodeno-jejunal angle was in an abnormal position, being situated to the right of the median line and resting over the right antero-lateral part of the vertebral column. In consequence the mesentery, instead of lying obliquely from above downward and from left to right, was disposed vertically. A large peritoneal diverticulum was found to the left of the duodeno-jejunal angle, opening toward the right. This was formed by a resistant peritoneal fold the concavity of which faced the left of the mesentery. A large part of its posterior wall was connected with the anterior surface of the left kidney. Exaggerated development of the cephalic segment of the pancreas and other minor anomalies were noted.

In endeavoring to interpret these findings the author states that during embryonic life the duodenum with the head of the pancreas lies at first in the median line and is fixed by its mesentery to the posterior abdominal wall. While the vitelline duct is undergoing a process of torsion the duodenum also undergoes changes which give it its ultimate form and situation. Its growth being fixed and

limited in its upper part, it is forced to lengthen downward, and its most distal part, the duodeno-pancreatic angle, is displaced to the left and, pushing toward the superior mesenteric artery, describes an angle of 270 degrees about the origin of this artery. When the duodenal loop has once undergone elongation and displacement, it becomes secondarily fixed to the posterior abdominal wall. Failure to develop in this normal manner was the cause of the anomalies observed in the author's case. The duodeno-jejunal angle had not reached its normal position and had not been normally displaced to the left of the median line or twisted to an angle of 270 degrees as in the normal condition.

W. A. BRENNAN.

Hesse, E.: Postoperative Trophoneurotic Gangrenous Disease of the Ileum and Colon (Trophoneurotische gangränöse postoperative Erkrankung des Ileum und Colon). *Wiensh Chirurgen i postrantichirnykh abhauet*, 1922, I, 38.

The author reports five cases of hemorrhagic enterocolitis following operation on the stomach. Three were cases of duodenal ulcer treated by gastro-enterostomy with exclusion of the pylorus according to the von Eiselsberg technique (two deaths from necrotizing colitis; one cure), one was a case of carcinoma of the stomach treated by resection by the Billroth II method (death seven weeks later from pneumonia and pulmonary gangrene following recovery from hemorrhagic colitis), and one was a case of carcinoma of the esophagus treated by gastrostomy (death from hemorrhagic colitis).

As errors in diet could be excluded in every instance and the bacilli of dysentery could not be found in the faeces, the author presents the hypothesis that the necrotico-diphtheritic changes in the intestinal mucosa had a trophoneurotic cause. In support of this view he cites Pawlow who stated that operations on the stomach or duodenum in experimental animals are frequently followed by disturbances of innervation such, for example, as paralysis of the posterior extremities, cardiac weakness, ulcers of the mouth, decubitus of the skin, a decrease in the temperature and the pulse rate, and fatal necrotic enteritis. Pawlow attributes these complications to operative stimulation of the inhibitory fibers of the heart and those which inhibit intestinal secretion. He distinguishes positive trophic nerves which stimulate, and negative trophic nerves which depress, the activity of an organ. The stimulation of the latter nerves by operative manipulations on the stomach or duodenum checks the secretory activity of the intestinal mucosa and favors the action of harmful intestinal bacteria. Our efforts toward prophylaxis should therefore aim at sparing the stomach and duodenum as much as possible. When extensive operations which lower the hydrochloric acid content must be performed (the von Eiselsberg and Billroth II operations), hydrochloric acid and acidopepsin should be prescribed. PEARSON (Z).

Judd, E. S., and Rankin, F. W.: Ileostomy Following Resection of the Colon. *Surg., Gynec. & Obst.*, 1922, XXIV, 50.

Ileostomy following resection of large bowel is a rational and advantageous procedure and has been performed many times at the Mayo Clinic. Resection of the right half of the colon is a safer and easier procedure and better from the standpoint of prognosis than resection of the left half because (1) the right half of the colon is more mobile, and (2) its blood supply is more constant so that necrosis is not so apt to occur at the point of anastomosis. The blood supply of the ileum is always sufficient and the continuity of the intestinal tract may be restored by end-to-end or lateral anastomosis. The former is preferred and is effected with three layers of sutures. If the lumina of the two ends are disproportionate, the ileum may be split opposite the border of the small intestine.

Because of the uncertainty of the blood supply of the left half of the colon and the consequent danger of leakage at the suture line, abdominal drainage is indicated whether end-to-end or lateral anastomosis is effected. Fortunately, the resulting fistulae are of short duration and the local peritonitis which sometimes follows rarely spreads.

The advantages of ileostomy as a safety valve and a ready drain to the proximal intestine are obvious. Back pressure from gas is avoided as well as the toxic products of chronic, progressive intestinal stasis.

The technique of the ileostomy performed by the authors is an adaptation of the Witzel method of gastrostomy. The loop of intestine is attached to the lower angle of the incision which is usually paramedial. This is preferable to a stab wound in either iliac fossa. Prolonged wound drainage from contamination is rare, and intestinal fistulae have not been observed. A loop of intestine about 30 to 40 cm. proximal to the anastomosis is stripped of its contents and held by rubber-covered clamps. A pursestring suture is applied to the area opposite the mesenteric attachment and an opening made into the lumen with a knife. A small rubber catheter with the end cut off and several fenestrations in the side is inverted into the lumen. The pursestring is tied and cut and a new suture used around the base of the tube, making a second invagination. The catheter is then depressed longitudinally to close the intestinal wall while the serous and muscular coats are drawn over it.

After completion of the enterostomy the catheter is attached in the lower angle of the wound to the parietal peritoneum and closed off with a clip to be opened when necessary. No. 8 catheters are the most satisfactory. The silk sutures used generally cut through readily and the catheter drops out about the twelfth day. The ease with which distention is prevented by this method is in striking contrast to the persistent and less successful use of enemas.

Following this operation nothing should be given by mouth for several days. Morphine should be

administered in adequate doses to control pain and inhibit peristalsis.

A brief review of the history and the different methods of ileostomy is given.

MERLE R. HOON, M.D.

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Kuemmell, Jr.: Surgical Cure of Biliary Fistulae (Operative Heilung der Gallen fisteln). *Zentralbl. f. Chir.*, 1922, xlix, 614.

Kuemmell describes a surgical procedure for the direct joining of the cavity of the fistula with the duodenum, an operation for the obliteration of fistulae in which no trace of the stump of a bile duct can be found. One short shank of a T-tube is sutured into the rigid-walled cavity of the fistula in the connective tissue and the other introduced into the duodenum, while the long shank of the tube is brought out of the wound. The rubber drain is not penetrated by the suture. Uneventful healing occurred in two cases reported. The tube was removed at the end of four weeks. The new connection between the biliary tract and the intestinal canal is, according to Kuemmell, a connective tissue tube.

In the discussion of this paper Jenckel stated that he was the first to use this method for the cure of biliary fistula. He employed it successfully in 1905 in a desperate case of cicatricial obstruction of the choledochus. Later DeGraeuve and Verhoogen reported other cures obtained in this manner. Wilms took up the method and put it on a scientific foundation. Jenckel has operated on six cases in the past ten years with no failures.

In answer to a question by Anschuetz, Jenckel said that in his opinion there occurred in the newly formed bile duct an epithelization of the connective tissue passage formed by the tube, and that this process started at the ends. This view was supported by Pels-Leusden.

GLASS (Z).

Wesselkin, N. W.: The Drainage of Bile into the Intestine After Extirpation of the Gall-Bladder (Der Austritt der Galle in den Darm nach Extirpation der Gallenblase). *Russk. Physiol. Jurn. imeni Ssetschenowa*, 1921, iii, 14.

It is known that under normal conditions bile is secreted by the liver without interruption. It is emptied into the intestine, however, only during digestion, or, if no food is taken, periodically. Thus it collects in the excretory ducts, or more particularly in the gall-bladder, and passes out into the intestinal canal under certain conditions. In order to study the bile flow after cholecystectomy the author proceeded as follows:

First the papilla of Vater in a dog was brought outside by Pawlow's method and in this way the flow of bile was studied during fasting and when the animal was given various diets. Then the gall-bladder was removed and the bile flow again observed.

It was found that there was no important difference in rhythm in the bile flow before and after the extirpation, and particularly that the flow was not constant after cholecystectomy as has been assumed by many. At necropsy on the dog one month after the operation, a widening of the large (not of the fine) bile ducts and of the stump of the cysticus was demonstrated.

Parkrow (Z).

Tenani, O.: The Surgery of Vater's Papilla (Contributo alla chirurgia della papilla del Vater). *Palermo, Rome, 1922, viii, 302, 242.*

Tenani reports the case of a soldier in which he removed a tumor of the papilla of Vater. The condition was at first diagnosed as occlusion of the common duct but exploration showed the presence of a duodenal tumor obstructing the mouth of the pancreatic duct; nodules could be palpated also in the vicinity of the head of the pancreas. The surface of the tumor was somewhat alveolar. A posterior gastro-enterostomy and a cholecysto-enterostomy were done as preliminary operations and followed at the end of a month by a radical duodeno-pancreatectomy by the technique of Kausch. Such an operation has been previously done only by Koerte and Kausch. Koerte's patient died thirteen days later from loosening of the sutures. Kausch's patient lived twenty-three months after the first operation, but then developed leukemia, was re-operated upon, and died.

In Tenani's case the result has been completely successful. The patient is alive and well three years after the operation. Histologic examination of the tumor showed it to be a cylindrical-celled and calcareous epithelioma.

Vaterian tumors may be classified into three groups according to whether they arise from: (1) the termination of the common duct, (2) the termination of the duct of Wirsung; or (3) the ampulla itself. Such tumors are very rare. Of 3,418 carcinomata found by Ferrari in 44,278 necropsies only nine were in the papilla, and in 2,000 operations on the biliary passages Kehr found only three such tumors.

The operative treatment applied has been either: (1) simple papillectomy, (2) papillectomy combined with duodenal excision, or (3) duodenal resection and removal of the head of the pancreas. In a review of cases of these operations reported in the literature the author found that in fourteen cases of papillectomy there were seven operative deaths, the result in two cases is unknown, the tumor recurred after one or two years in two cases, two patients were cured for more than six years, and another was cured but followed for only four months. In eleven cases of papillectomy with duodenal resection there were four operative deaths, four recurrences, two recoveries maintained for two or more years, and one doubtful recovery. Therefore these two methods were followed by eleven operative deaths and only four lasting recoveries.

The author therefore believes that a more radical method is necessary, a method removing the glands

tributary to the ampulla to reduce the chances of recurrence. Such a radical method is duodeno-pancreatectomy according to the technique of Sauve, Kausch, or Desjardins. Tenani prefers Kausch's technique which was that followed with success in his own case (the third operated upon on record). This is a two-stage procedure. The first stage consists of laparotomy, duodenal exposure, exploratory duodenostomy, cholecysto-entostomy, resection of the common duct, burial of the vesicular extremity beneath the peritoneum, and anastomosis of the two jejunal loops. The second stage, which is done about four weeks later, includes gastro-enterostomy, section of the duodeno-hepatic ligament and the duodenum near the pylorus, burial of the stump, the removal of all glands in the vicinity apt to be affected, and resection of a tract of the pancreas near the ampulla of Vater.

The most difficult part of partial pancreatectomy is the treatment of the stump and the re-establishment of the course of the pancreatic secretion. The best solution of this problem is pancreato-enterostomy. Ligation of the duct and its separate implantation in the intestine has been proved impractical by experiments. The outlet of the pancreas into the intestine should be protected with a strip of peritoneum. The possibility of obtaining a good functional result from grafting the resected pancreatic stump into the intestine was demonstrated by the cases of Kausch and that of the author. Although Kausch's patient died of biliary obstruction twenty-three months after the primary operation the autopsy disclosed no evidence whatever of carcinomatous recurrence.

W. A. BRENNAN

Inlow, W. D.: The Spleen and Digestion: The Spleen and Pancreatic Secretion. *Am. J. M. Sc., 1922, clxiv, 29.*

It has often been assumed that during the digestive congestion of the spleen a substance is liberated into the blood stream which transforms the zymogen of the pancreas into active trypsin (Schiff-Herzen hypothesis). Many experimental investigations which have seemed to substantiate this theory have been digestive tests made *in vitro* with pancreatic and splenic infusions; many others which have seemed to invalidate it have been experiments on animals with permanent pancreatic fistulae.

Sweet and Ellis have recently reported striking simple atrophy of the spleen following complete removal of the external secretion of the pancreas. They believe this atrophy is greater than can be explained by the loss in body weight occurring under such circumstances and that it suggests a specific inter-relationship of the pancreas and spleen.

Preliminary to the investigation of the Schiff-Herzen hypothesis Inlow developed a new technique for the formation of a permanent pancreatic fistula. The classic technique (Pawlow) previously employed is as follows:

The duodenum is delivered through a midline or right rectus incision, the entrance of the pancreatic

duct is isolated, and a rhomboidal piece of the duodenal wall bearing the orifice of the duct in its center is excised. The opening in the bowel is closed and the isolated piece of intestine sewed into the slit in the abdominal wall, the duodenum being retained against the anterior parietes by temporary suspension sutures.

The new operative procedure may be performed in one or two stages. The duodenum is transplanted under the skin of the abdomen, the duodenal axis is severed at its entrance into the intestine, and the duct is brought to the surface through a stab wound in the skin at a point away from the primary operative incision. The great advantage of this technique is that the proteolytic ferment in the pancreatic juice is inactive and does not digest the abdominal wall. The success of the operation depends on: (1) the avoidance of opening the intestine which would be associated with the possibility of stricture of the duodenum or peritonitis, (2) the prevention of retraction and necrosis of the duct due to tension by the transplantation of the duodenum under the skin, and (3) the avoidance of subsequent closure of the fistular orifice by inclusion in the operative scar.

In a previous study Inlow presented data concerning the pancreatic secretion before and after splenectomy in two dogs with permanent pancreatic fistulae of the type last described. Removal of the spleen caused no definite changes in the amount, alkalinity, or content of trypsin, steapsin, and

amylase of the pancreatic secretion. It was concluded that a trypsinogenic function of the spleen had not been demonstrated.

In this study the effect on the spleen of removal of the external secretion of the pancreas, whether by ligation of the pancreatic ducts or by resection of the duodenal portion of the gland, was investigated in a series of dogs. Control animals with equal loss in body weight obtained by fasting were similarly studied. A mathematical method was evolved for the determination of the weight of the spleen *in vivo*, provided certain splenic measurements are taken and the final weight of the spleen at the death of the animal is known. In this investigation Inlow demonstrated that there is a notable diminution in the size of the spleen on removal of the external secretion of the pancreas which is out of all proportion to the loss in body weight. However, a similar phenomenon occurred in the fasting animal and in the animals with inanition from any other cause, whereas in a dog losing over one-half of its pancreatic juice through a fistula and yet maintaining its body weight, such diminution in the size of the spleen did not occur. Histologically, the changes in the shrunken spleen were those of simple atrophy.

It was concluded from these investigations that a definite functional relationship between the spleen and pancreas has not been demonstrated, but that in inanition, a marked loss in splenic substance occurs, the meaning of which is still obscure.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Valentin, B.: A Peculiar and Previously Unknown Form of Multiple Epiphyseal Disturbances (Ueber eine eigenartige, bisher unbekannte Form multipler Epiphysenstörungen). *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxix, 120.

The author describes a case of multiple, chronic, and severe affections of the symphyses and epiphyses of the left knee, the right ankle, and the proximal joint of the middle finger in a child 7 years of age. The cause of the condition may be tuberculosis, syphilis, or any other chronic infection come up for consideration. A negative Wassermann test of the blood and cerebrospinal fluid was against syphilis, and tuberculosis was excluded by the negative result of the von Pirquet test. The microscopic examination of a small piece of intermediary cartilage and diaphyseal bone showed no signs of tuberculosis, but there were marked changes in the otherwise regular disposition of the cartilage cells of the intermediary cartilage; the apparently normal cell forms were jumbled together and forms, usually not found in children of this age, were present. Valentin suggests that this case may belong to that group of disease processes resembling the bone affections described by Perthes, Ludloff and Koehler. BANGE (Z).

Verebely, T.: Bone Cysts (Ueber Knochencysten). *Orvoshírsz*, 1922, xii, 1.

The author had occasion to operate on twenty-nine cases of bone cysts within ten years and to examine the cysts histologically. He classifies his cases as follows:

Blood cysts.....	1
Oil cysts.....	2
Serous cysts:	
Systemic:	
General.....	0
Circumscribed.....	1
Solitary:	
Callus cysts.....	3
Osteoperiosteal.....	2
Dysplastic.....	14
Neoplastic:	
Chondromatous.....	2
Sarcomatous.....	1
Carcinomatous.....	2
Water cysts: hydatid cysts.....	1

The blood cyst occurred in the upper epiphysis of the tibia of a male seventeen years old a few months after an injury and was the cause of severe pain. On incision, a pulsating blood stream poured forth. Amputation below the knee was done. Microscopic study showed the presence of osteitis fibrosa.

The two oil cysts occurred in the fibula of two persons with tuberc. One was found in the head of the fibula and the other in the external malleolus. After incision of the cyst the defect was filled with bone splinters.

Of the three solitary, serous, callus cysts, two were in the femur and one in the fibula. In every case the cyst produced a complicated fracture.

The two interperiosteal cysts arose from injury to the orbit and caused exophthalmos.

All of the fourteen dysplastic bone cysts occurred in persons under 20 years of age, the majority between eight and twelve years. In ten cases the humerus, in two cases the trochanter, and in one case each the tibia and the hand palate were involved. In nine cases the cysts caused spontaneous fracture of the humerus. Those occurring in the tibia and the palate showed the structure of an epulis-like giant-celled granuloma. All of the cases were operated on and in thirteen a bone transplantation was done with good results.

Of the chondromatous cysts, one that was one and one-half times as large as a fist occurred in the upper epiphysis of the humerus and the other in a finger joint. The round-celled sarcomatous cyst affected the trochanter.

Of the carcinomatous cysts, one was a metastasis from a cystic cancerous goiter and caused spontaneous fracture of the humerus. After one and one-half years, a struma nodosa cystica developed between the surfaces of the left shoulder blade. This was treated by resection. After another period of one and one-half years transverse myelitis developed as the result of pressure from a tumor of the seventh thoracic vertebra as large as a hen's egg. Laminectomy was then done. Death followed three months later from general metastases. The other case was that of a man 21 years old with two fist-sized cysts in the trochanter, for which resection and bone transplantation were done. Death followed in three years from cancer of the lung.

The water cyst was an alveolar echinococcus cyst of the pelvic bones. VON LOHMAYER (Z).

Starr, C. L.: Acute Hematogenous Osteomyelitis. *Arch. Surg.*, 1922, 15, 367.

The condition called osteomyelitis is essentially a periosteomyelitis involving all of the structures of bone. However, contrary to general belief, the infection spreads, not by way of the medulla, but along the line of the epiphysis to the periosteum. As the periosteum is firmly attached to the epiphyseal cartilage, it then leaves its joint-bound course and spreads down the shaft, stripping the periosteum. This is shown by pathologic findings in the bodies of persons who died of concomitant disease in which the epiphyseal line and the periosteum were extensively involved but no lesion was found in the medulla. It has been demonstrated also experimentally by the injection of virulent organisms into the nutrient artery of dogs which caused extensive periosteitis but little involvement of the medulla.

The medulla is involved secondarily by extension through the Haversian canals from the periosteum.

The author agrees with other observers that the infiltration and raising of the periosteum causes no X-ray shadow and hence negative X-ray findings are of no value in ruling out the disease.

If upon incision frank pus is encountered beneath the periosteum, the periosteum should be incised and drainage established. If frank pus is not found, even the periosteum is stripped, a series of three diagonal drill holes should be made $\frac{1}{4}$ in. apart, from the cortex to the epiphyseal line to allow free escape for infectious material. The trephining of the shaft for several inches is to be condemned.

DAVID TELSON, M.D.

Kofoid, C. A., and Swezy, O.: Amœbiæ of the Bones. *J. Am. M. Ass.*, 1922, LVIII, 1662.

The authors report the discovery of endamoeba dysenteriae in a case of arthritis. The case presented was that of Dr. L. W. Ely of Stanford University Medical School. The amœbæ were found in the head of the excised femur. They were differentiated from the surrounding body cells by the arrangement of the karyosomes and by their staining characteristics. Other facts regarding individual differences between amœbæ and human cells are presented.

The question is discussed as to whether these bone amœbæ arise in the teeth and tonsils (endamoeba gingivalis) or in the bowel (endamoeba dysenteriae).

J. R. MITCHELL, M.D.

Axhausen: Syphilitic Disease of the Joints (Dieluetische Erkrankung der Gelenke). *Fortschr. d. Med.*, 1922, XI, 141.

With the aid of eighteen short histories, four roentgenograms and one illustration, the author discusses the pathologic anatomy and the clinical findings of joint syphilis and specifically the joint diseases associated with hereditary lues and the late stages of acquired syphilis. As joint syphilis is seen quite often, as it is often not diagnosed, and as the failure of diagnosis results disastrously (bony ankylosis) whereas specific treatment of early cases at least restores function, the author discusses the diagnosis of this disease in detail and especially its differential diagnosis from joint tuberculosis.

The joint most frequently involved is the knee, and strikingly often both knees. Next in frequency of involvement is the elbow; also not rarely both elbows. The joints of the foot, shoulder, and hand are affected only slightly less frequently, and the hip, sterno-clavicular, and upper tibio-fibular joints may also be involved. Frequently there is multiple joint involvement and one of the diseased joints already shows bony ankylosis.

Syphilis of the joints is of two forms, the synovial and the osseous. The clinical picture of synovial joint syphilis may show strikingly different types and may resemble that of rheumatic polyarthritis or gonorrheal monoarthritis. Bilateral flaccid knee joints, a slightly cloudy yellowish exudate, slight

swelling of the capsule, and moderate symptoms are almost pathognomonic of hereditary lues. The pain and the tendency to contracture and muscle atrophy are usually less than in tuberculosis. The most important point in the differential diagnosis is the Wassermann reaction; a strongly positive result in the blood practically proves the luetic nature of the disease. In a whole series of cases the joint fluid (when hydrops was present) also showed a strongly positive Wassermann reaction, often even when the blood was negative. In those rare cases of joint diseases with a negative Wassermann reaction, absence of luetic symptoms, unsuccessful antirheumatism treatment, and negative tests for tuberculosis there should be no hesitancy in giving energetic antilues treatment as it may result in cure. The roentgenogram may show characteristic findings. In addition to erosion of the joint surfaces there may be uncircumscribed subchondral foci, often with wedge-shaped sequestra and atrophy of the rest of the epiphysis although otherwise the structure may be intact and the surface of the extra-articular side may be smooth.

In the osseous form of joint syphilis there are diffuse bony changes (loss of the normal structure, cloudy haziness, and periosteal bone formations) which in some cases extend far into the shaft. In addition to the joint disease, a doughy swelling in the region of the adjacent bone shaft is observed. This is painful and thickened, and if the disease has extended to the musculature, may suggest a sarcoma. Relatively frequently adults are found to have a diffuse bone syphilis. The treatment is the usual antilues treatment (potassium iodide, mercury, and salvarsan). Not infrequently severe, long-standing joint syphilis results in ankylosis, but even when the joint is left with good function, its ultimate fate is not assured. Slight sensitiveness of the cartilage indicates a guarded prognosis as it shows that the disease has resulted in injuries of the cartilaginous covering, and such disturbance of its nutrition usually leads to arthritis deformans.

Joint syphilis may simulate also the primary chronic polyarthritis of infancy. In these cases early diagnosis makes possible effective treatment whereas chronic polyarthritis cannot be influenced.

Lues should be borne in mind in the treatment of every case of joint disease of unknown etiology.

HOFFMANN (Z.).

Hanausek, J.: A New Method of Massage and of Electrization in Joint Contracture and Muscular Paralysis (Nouvelle méthode de massage et d'électrisation dans la contracture des articulations et les paralysies musculaires). *Rev. d'orthop.* 1922, 3 a. ix, 345.

Up to the present time, massage and electricity were employed in the treatment of joint contracture and slight paralysis without taking account of the position of the limb with regard to the joint or the approximation of the points of origin and insertion of the muscles involved.

In the method recommended by Hanausek the greatest attention is paid to the contracture and the antagonists of the contracted muscles are massaged and "electrified."

In pes equinus due to contracture of the triceps surae the condition is ordinarily treated by massage and electrization of all the leg muscles. The extensors of the leg are stretched and weakened. In order to make the excited muscles contract under massage and electricity when the strong contracture of the antagonists is opposed to them, as much weight traction as possible is applied to the triceps muscle which then approximates the origin and insertion of the extensors more than if the contracture is neglected. The extensors can contract much more when excited by massage or electricity, than following the older methods of treatment.

The author shows also how the traction-plus-massage method can be applied to other joints.

W. A. BRENNAN.

Season-Jaroschewitsch, A. J.: The Spread of Pus Foci in the Scapular Region as Shown by Anatomical Experiments (Die Verbreitung der Eiterherde in der Regio scapularis vom Standpunkte des anatomischen Experiments). *Inst. d. oper. Chir. u. topogr. Anat. d. Prof. W. N. Schewkunenko.*, Petrograd, 1921.

This work consists of four parts. In the first the author discusses the clinical problems presented by the many cases of deep pus foci in the shoulder region. There are a number of questions concerning the primary localization and the manner of spread of these abscesses which have not yet been answered. The author made sixty-five injections of the interfascial spaces of the shoulder region, and by a comparison of the results obtained in clinical cases, which he had observed himself, he arrived at conclusions of practical importance.

In the second part of the work he gives a description of the shoulder joint and the fasciæ of the scapula. At the posterior margin of the infraspinatus muscle the fascia infraspinata separates into two layers, the superficial and the deep. The deep layer of the fascia takes part in the formation of the mesial sheath wall of the deltoid muscle and is attached to the coraco-acromial ligament opposite the point of attachment of the fascia supraspinata. Covering the deltoid muscle, it runs under the short head of the biceps and under the coraco-brachialis muscles. At the same time it covers the capsule of the shoulder joint and the insertions of the muscles of the scapula and the humerus as far as the surgical neck. There is thus constructed for the shoulder joint a humero scapular hemisheath and it is within the region of this hemisheath that the movements of the head of the humerus take place. This same structure has a certain pathological importance since it is connected with the other interfascial spaces. By an opening under the acromio-clavicular fornx it joins the fissure-like space between the fascia

supraspinatus and the trapezius muscle which contains a large quantity of fatty tissue. On the other side, under the acromial process and the coraco-acromial ligament the bursosheath connects with the space which is found under the fascia supraspinata.

On the basis of these anatomical facts, it is possible to picture the spread of abscesses of the shoulder region. Superficial abscesses situated between the trapezius muscle and the subscapular fascia (particularly when they have involved the connective tissue) spread under the deltoid muscle in the neighborhood of the shoulder joint. The connection between the bursosheath and the sheath of the supraspinatus muscle is the route of further spread of the pus from the shoulder joint into the sheath of the muscle named and vice versa. In a number of cases the mass which the author injected under the trapezius muscle found also another route to the shoulder region, spreading over the upper margin of the scapula into the gap between the subscapularis and anterior serratus muscles, that is, into the so-called antescapular space. By way of the latter, it reached the shoulder joint. The findings of the anatomical research are corroborated by clinical illustrations.

In the third part of the work the author gives a description of the fascia of the scapular region and the fascial sac. He distinguishes five fasciae of the scapular region. The first is a portion of the superficial fascia. The second covers the trapezius muscle on the posterior and lateral sides and is adherent to the next fascia. The third covers the levator scapulae muscle and the rhomboid muscles and continues onto the posterior surface of the shoulder, where in part it merges into the fascia infraspinata. Somewhat lower down it covers the posterior surface of the latissimus dorsi muscle. Between the fascia infraspinata and this fascial layer (that is, the complex of the second and third fasciae) there is a narrow gap. The fourth fascia covers the anterior surfaces of the rhomboid muscles and the levator scapulae muscle. Below, on the medial side of the linea scapularis it becomes closely fixed with the anterior surface of the latissimus dorsi muscle. It runs as far as the posterior margin of the anterior serratus muscle and here divides into two layers which cover the muscle. Between the latissimus dorsi and the serratus muscles lies a fascial sac. The fifth fascia is situated in the anterior antescapular fossa, that is, between the ribs and the anterior serratus muscle. This last fascia is a broad lamella which extends from the spinous process as far as the insertion of the anterior serratus muscle, from the second to the eighth rib. In the scapular region there are thus three distinct fascial spaces: (1) between the fascia infraspinata and the third fascia; (2) between the latissimus and the anterior serratus muscles; and (3) in front of the scapula.

The author presents also the results of his own research regarding the spread of infected masses, and cites clinical cases illustrating them. He believes that abscesses should be drained as early as

possible. Adequate drainage can be carried out only on the basis of anatomical facts. The approach to the antescapular space must be made through Velpeau's triangle (situated between the latissimus rhomboides and trapezius muscles). This muscle-free space leads into the lowest portion of the antescapular sac. It lies 1.5 cm. above the angle of the scapula, lateral to its vertebral margin. To open it, a lateral incision along the upper border of the latissimus muscle is recommended.

WALKER (Z).

Gibson, A.: *The Painful Traumatic Shoulder.*
J. Bone & Joint Surg., 1922, XX, 552.

The author limits his discussion to acute conditions of the shoulder, i.e., minor injury in the brachial plexus which form a progressive series leading to a fully established brachial palsy.

In Gibson's opinion, brachial palsy includes all lesions from slight atrophy of the infraspinatus muscle to slight wasting of the thenar and hypotenar eminences.

The violence causing the interference with function may be applied to the shoulder directly or indirectly. Many cases show no fracture, but pain on movement of the joint may continue for months. A Colles fracture may be sustained and a few weeks later pain may develop in the corresponding shoulder joint. Violence, frankly indirect, may produce a traumatic subacromial bursitis. At times the blow of the fall is transmitted to the clavicle and as a rule the clavicle gives way. The acromioclavicular joint is usually not involved in lesions due to a fall on the out-stretched hand as the strain is transmitted through the head of the humerus to the glenoid portion of the scapula.

Examination of the shoulder after injury reveals limitation of motion. Care is necessary in the prognosis. Improvement may be fairly rapid at first, but many of these shoulders remain painful for months. Careful examination will frequently reveal tenderness about the supraspinatus, the infraspinatus, and the deltoid, as well as the teres minor and major. Comparison with the opposite side often reveals muscular atrophy.

The supraspinatus and infraspinatus muscles are most liable to injury; and next, the deltoid and teres minor. In time there will be almost complete return of function, but weakness and atrophy of the infraspinatus often persist.

Detection of the disability is easy if the patient is asked to raise both hands straight in front of him to the shoulder level. There is usually a difference in height, the affected side being lower. If the arms are stretched straight out laterally from the shoulder, the affected shoulder is heaved up and the hand on the affected side is lower than that on the normal side. With the elbows on the table, external rotation on the affected side is slower and more limited than on the normal side.

Occasionally these disabilities are due to partial rupture of the fibers of a tendon which while

taut, are suddenly subjected to unusual strain. As a rule, however, the lesion is of different origin. If the supraspinatus and infraspinatus are involved alone, the lesion is to be attributed to injury of the suprascapular nerve. Usually it must be looked for at a point where the fibers to involved muscles—the supraspinatus, infraspinatus, teres, and deltoid—are closely associated. This vulnerable point is the upper trunk of the brachial plexus. Forcible separation of the head from the shoulder places it on the stretch, and this may cause damage to muscles supplied by the fifth and sixth cervical nerves. These nerves supply the deltoid, the spinati, the teres minor and major, the subscapularis, and the clavicular fibers of the pectoralis major.

The actual nerve lesion varies from hemorrhage into the nerve sheath to rupture of the nerve fibers.

The treatment is rest. Active movement may be permitted to a degree which does not cause pain or fatigue. Massage and electricity are frequently employed. Joint motion through full range once a day is sufficient.

The author cites several cases.

J. R. MITCHELL, M.D.

FRACTURES AND DISLOCATIONS

Bizarro, A. H.: Injury of the Limbs Due to Back-Fire. *Ann. Surg.*, 1922, lxxvi, 83.

Back-fire fractures or injuries constitute 36 per cent of injuries of the forearm. In 141 cases with a definite bony lesion there were ninety-five cases of fracture of the radius alone, one case of fracture of the ulna, 28 cases of fracture of the radius and ulna, nine cases of fracture of the carpal bones, one case each of fracture of both the radius and the scaphoid, a metacarpal, the humerus, the clavicle, and the femur, and one case of luxation of the elbow.

The author draws the following conclusions:

1. The most common site of back-fire fractures is the lower third of the radius and ulna and the next most common the carpal bones.

2. The most common type of single bone lesion is a crack through the epiphyseal line of the radius.

3. The ulna styloid tip and the radial epiphyseal line are the most common type of double bone lesions.

4. The scaphoid is the bone most frequently involved.

5. In persons under 20 years of age the diagnosis of ulna styloid fracture is more difficult because frequently there are irregularities of ossification.

6. In 25 per cent of the cases of the series of cases reviewed the injury of the wrist was limited to the soft parts.

7. The upper ends of both the radius and the ulna are occasionally the sites of fracture.

8. The age of the subject has no relation to the occurrence of the fracture at the epiphyseal line.

9. The majority of these injuries are of the indirect type.

10. The prognosis is usually good.

F. W. CARRUTHERS, M.D.

Lexer, E.: The Origin of Pseudarthroses Following Fractures and Bone Transplantations (Ueber die Entstehung von Pseudarthrosen nach Frakturen und nach Knochentransplantationen). *Arch. f. klin. Chir.*, 1922, cxix, 520.

This valuable and exhaustive work by Lexer is not well adapted for a short review and should be read in the original. Therefore only extracts will be given.

The author states his position in the beginning as follows: "Although the factors favoring the development of pseudarthrosis are numerous, the basic cause is always a decrease in bone-forming power. In some cases, the regenerative capacity becomes insufficient when the osteogenetic power is decreased or destroyed by injury (suppuration, trauma, or general disease), and in other cases the unfavorable influences may be too great even for a normal regenerative capacity. If one considers the nature of the injury of the bone-forming tissue and the impediments to the healing of the fractured bone, the importance of the periosteal and myelogenic powers becomes evident, particularly when they are compared with similar processes leading to pseudarthrosis in bone transplants."

In the first part of the article Lexer discusses the injury of the cell material from which the callus formation proceeds (the cambium layer of the periosteum and the osteoblasts of the terminal artery and the medulla). Suppurations destroy them and trauma injures the formative cells to a varying degree, especially at the site of the fracture. In general diseases the injury decreases the nourishment supplied by the periosteal and nutrient arteries (fracture hyperæmia). The entire arterial system belonging to a bone responds to the trauma producing the fracture with a marked vascular filling and the formation of new vessels. The bone fracture hyperæmia brings an increased supply of nutrition to the injured site. The fracture hyperæmia is followed by two results important for the healing of the fracture: (1) the establishment of collateral circulation for the injured vascular areas, and (2) the restoration and nourishment of the bone-forming elements for the development of callus. In fracture of the middle portion of the neck of the femur the poor vascular supply of the fracture is frequently responsible for pseudarthrosis. The author discusses the work of Dax who, he believes, exaggerates the importance of the nutrient artery. According to Lexer, injurious results are to be expected only following simultaneous injury of the nutrient artery and destruction of the periosteal reticulum. The old view that the fragment lying in an opposite direction to that of the nutrient artery is deficient in callus formation because of poor nutrition, is false. Lexer has found that fracture hyperæmia runs its course in man in the same way as in animals, i.e., the periosteum is involved more readily in callus formation than the bone marrow. The metaphysis provides the best conditions for a rapid fracture hyperæmia leading to callus formation.

In discussing the stimulants by means of which fracture hyperemia may be maintained or increased the author states that the injury of the periosteum as well as that of the medulla may vary and have the most varied results as regards fracture hyperemia. Even extensive separation of the periosteum from the bone is not injurious. The periosteum is injured much more severely when it remains attached to the bone but is separated from the soft parts, or the soft parts around the bone are destroyed. The injury of the bone-forming elements at the site of the fracture is overcome by the arterial hyperemia. Injury of the periosteal vessels and deficiency of periosteal callus formation frequently leads to a pseudarthrosis because the medullary callus becomes strong only after the establishment of the collateral circulation within the bone. Non-appearance of medullary callus is of no importance if the periosteal tube receives a powerful hyperemia. Therefore the most important cause of pseudarthrosis is deficiency in the periosteal nutrition. Martin's experiments with a retained cylinder of marrow after the removal of the bone cortex and periosteum gave valuable information regarding the beginning stages of pseudarthrosis.

Lexer next takes up the subject of callus formation. He believes that in this process the origin of the connective tissue is the most important factor in the development of pseudarthrosis. On the basis of his transplantation experiments he claims that the vascular germinal tissue forms bone only when it has its origin in osteogenic tissue, and that when it grows into the tissues as a derivative of the connective tissue in the surrounding area it acts as a resorbent. When connective tissue from the surrounding parts or granulation tissue (traumatic, inflammatory, or suppurative) grows into the fracture cleft of a bone transplant and becomes a cicatrix, bony union falls permanently. Attention is called to the established fact that the periosteal callus is of greater importance in the healing of fractures than callus originating from the medulla. Recently, however, the function of the periosteum as a callus former and a source of regeneration has been completely or partially denied (Bier and others). According to Bier, the medullary callus is of most importance for true regeneration (as shown by the hormones originating from the bone marrow). The author states that he supports the view of Schuchardt in regard to the part played by the bone marrow in regeneration. The fact that a bone fracture heals best when all the bone-forming cells in the stumps take part in the healing process is self-evident. The results of various animal experiments on the production of pseudarthroses are so distinctly dependent upon inhibition of the fracture hyperemia in individual vascular areas that any other explanation is entirely excluded.

In the second part of the article Lexer discusses in detail the impediments to the union of the callus masses in fractured ends capable of regeneration. The following conditions can produce pseudarthro-

sis by themselves: (1) interposition of adjacent tissues, (2) effusion of blood, (3) cicatricial masses, (4) defects, and (5) constant motion at the site of fracture. In conclusion the statement is made that absence of stimulating influences (hormone-like stimuli of Bier) may be responsible but the author believes that there is no need for any such hypothesis.

GLASS (Z.)

Marsiglia, G.: The Internal Secretions and Delayed Union of Fractures (*Le secrezioni interne e il ritardo consolidazione delle fratture*). *Arch. Ital. di chir.* 1922, v, 197.

The relation of various internal secretions and skeletal development has been definitely proved, especially in young animals. Marsiglia reviews the various experiments in altering the internal secretions by complete and partial removal of the glands and their influence on skeletal development and osteogenesis. The results obtained in young growing animals with experimental fractures are summarized as follows:

1. Thyroidectomized animals usually showed delayed union.
 2. Thymectomy resulted not only in delayed union but also in imperfect union.
 3. According to some authors, parathyroidectomized animals showed little or no delay in union.
 4. Bilateral adrenalectomy had no influence on union.
 5. Bilateral ovariectomy accelerated union.
- In experiments on adult dogs Marsiglia found that partial or complete thyroidectomy, unilateral adrenalectomy, partial or complete ovariectomy, and transorbital removal of the hypophysis did not retard the normal process of union.

H. F. DUNN, M.D.

Montagne, I. A.: Habitual Luxation of the Shoulder (*Habituelle Schulterluxation*). *Nederl. Maandschr. v. Geneesk.*, 1921, x, 314.

The author reports the case of a girl of 23 years with luxation of the shoulder due to a fall down stairs. The luxation became reduced spontaneously but at constantly lessening intervals and with ever less cause it reappeared.

As causes of habitual luxation of the shoulder the author mentions: (1) a too broad or slack capsule; (2) alterations in the humerus, loosening or rupture of the muscles from the greater tuberosity, loosening of the subscapularis muscle from the lesser tuberosity, alteration in the form of the head of the humerus; (3) alterations in the articular surface, breaking off or diminution of the medial border; and (4) alterations in the contents of the joint (hydrops, loose bodies).

The etiology must be determined. It is often very difficult to state whether an existing alteration in the joint was the cause or the result of the luxation; hence it is difficult to determine the treatment indicated. The following methods come under consideration: (1) suturing or strengthening of the capsule.

(2) suturing of the detached muscles or the bony processes; (3) enlargement of the glenoid cavity by excavation or by the implantation of a bony splinter in the border; (4) removal of joint effusions and of loose bodies.

Most operations are carried out according to the first method. Since they are often successful, the false conclusion is drawn that relaxation of the capsule is the most frequent cause of habitual luxation. In the case reported, operation was carried out in the following manner:

When the capsule had been broadly exposed, nothing abnormal was to be seen within it or in the humerus, either on inward or outward rotation. When the capsule was incised the contents of the joint proved to be normal. Most important of all, there was no widening of the capsule. Hence the fascia of the deltoid muscle was sutured to that of the pectoralis major and another suture was applied above. In this manner a cushion of muscle and fascia was formed on the inner side of the head of the humerus, the spot where formerly the luxation had taken place.

The operation was successful. Two years later the patient reports that function is normal.

SCHUELE (Z).

Bernstein, M. A.: Open Reduction of an Old Congenital Hip Dislocation. *J. Bone & Joint Surg.*, 1922, xx, 481.

Following a brief review of congenital hip reduction by open and closed methods from the time of Pravaz in 1838 and Lorenz in 1897 to the revised methods of Bradford, Galloway, Tubby, Albee, and Fordyce Jones, the author reports his own case as follows:

A girl, 20 years old, had a dislocation of the left hip which was first noticed when she began to walk. It was found that the leg was 4 in. short and there was no stability, but the acetabulum was of fairly good depth.

Approach to the hip was gained by the Smith-Petersen incision. The head of the femur appeared normal. The capsule, which was long and constricted was opened. The periosteal and tissue attachments of the head to the ilium were stripped downward, allowing the head to be brought opposite the acetabulum by traction. To reduce the head it was necessary to remove the posterior portion of the capsule. This permitted partial engagement. The head was forced into the acetabulum by hammering gently but firmly upon the trochanter. The capsule was then reefed and sewed about the margin of the acetabulum with kangaroo tendon and a cast was applied with the leg in extreme abduction.

Although the postoperative course was somewhat painful because of the stretching of the anterior crural and external popliteal nerve roots, a good recovery followed, the hip remaining well in place and there being no shortening of the leg.

ROBERT V. FUNSTEN, M.D.

Evans, E. L.: The Late Results of Manipulative Treatment of Congenital Dislocation of the Hip. *Brit. J. Surg.*, 1922, x, 15.

The author reviewed forty-nine cases of congenital dislocation which included sixty-one joints treated in the Royal and Royal National Orthopedic Hospitals between the years 1903 and 1916. All of the patients were called in for re-examination, but eighteen did not return and are therefore not included in the statistics. The results are classified as follows:

1. Anatomical cures. Of the thirty-eight patients recently examined, only ten showed concentric reductions with normal femoral heads and necks, while thirteen showed concentric reductions with changes in the head and neck of the femur. The most common of the changes was coxa vara. Others were buffer-shaped heads, flattening of the epiphysis, and absorption of the neck.

2. Excentric reductions. In these cases the head forms a new joint within the limits of the enlarged acetabulum, but not concentric with its center. Changes in the head and neck are almost invariably present and are suggestive of dry arthritis. In this group there were five cases (13 per cent).

3. Anterior transpositions. Few changes are noted in the head and neck, a fact which probably accounts for the good functional results. There were four cases in this group (10.5 per cent).

4. Relapses. In the thirty-eight joints examined there was one dislocation (2.5 per cent), one instance of loss of the head and neck (1 per cent), and four joints which had not been reduced (10.5 per cent).

The author's method of reduction is based upon the Lorenz technique. He generally applies a hip spica from the waist to above the knee and in bilateral cases shortens the Lorenz period of retention from three to six months. In unilateral cases he has maintained the retention for eighteen months to two years with 90 degrees of flexion and 70 degrees of abduction.

Numerous X-ray plates illustrate this article.

ROBERT V. FUNSTEN, M.D.

Fairbank, H. A. T.: The Late Results of Treatment of Congenital Dislocation of the Hip. *Brit. J. Surg.*, 1922, x, 24.

The author reviews 146 cases with a total of 175 hips, which were treated from 1903 to 1914 inclusive. The Lorenz method was used, but was not followed strictly. The leg was retained in a spica at right angles for not less than six months. In the cases of very young patients the plaster was removed after six months, but in those of patients who were older it was re-applied once or oftener with diminished abduction, and massage, exercise, and passive stretching were carried out later for several months. Thirteen cases treated by open operation are not included in this discussion.

Fairbank has compiled a series of tables in which he shows that the age limit has a very definite

bearing on the outcome of treatment. This is especially true in bilateral dislocation. The majority of Fairbank's patients were examined between seven and twelve years after the operation. When reduction was effected before the third year of age cure was obtained in 70 per cent of the unilateral cases and 45 per cent of the bilateral.

It is interesting to note that in four cases of unilateral dislocation with an excellent result the affected leg is now the longer of the two, the reduction was effected before the age of 3, and the final examination was made eight to ten years later. Only one-fourth of the anterior repositions are credited with good functional results. The author is inclined to reduce hips as early as the eighteenth month of age if possible.

Complications in the author's cases included fractures of the femur in five of 200 operations. In seven cases a form of osteochondritis deformans juvenilis was noted after reduction; the broken-up appearance of the head was more obvious than the typical *capitulum planum*. Stiffness of the hip, probably due to traumatic arthritis, was present in many cases immediately after release from the cast, but with rest this usually subsided. In five cases the head of the femur was found riding forward on the horizontal ramus of the pubis.

In conclusion the author states that if treatment is given by the third year, anatomical reduction should be obtained in 75 per cent of the unilateral cases and 50 per cent of the bilateral cases. Imperfect results should be followed by open operation making a hip for the acetabulum without opening the joint. After reduction the full right-angle abduction should be maintained for a minimum of six months. Fairbank does not feel justified in attributing any advantage over non-reduction to anterior reposition. Physical treatment after removal of the cast does not affect the anatomical result but may influence the function of the hip.

ROBERT V. FUNSTEN, M.D.

Kidner, F. C., and Lakoff, C. B.: Muscle Interposition: A Cause of Delayed Union in Fracture of the Femur. *J. Am. M. Ass.*, 1922, lxxix, 260.

The authors present a small group of cases which call attention to the fact that interposition of muscle between the ends of the fragments is one of the causes of unsatisfactory results in the treatment of fractures, especially fractures of the femur. In their series of seventy-one cases open operation was done for only three reasons: (1) for the removal of muscle tissues interposed between the fragments; (2) for débridement of fresh compound fractures, and (3) for drainage of previously existing sepsis in cases treated elsewhere.

The following conclusions are drawn:

1. If properly applied traction does not bring the fragments of a fracture of the femur into bony contact, as shown by roentgenograms taken in two planes, within three or four days, the case should be viewed with suspicion.

2. If specially worked out methods are not immediately successful thereafter, manipulation to disengage the fragments from the muscle under anesthesia should be employed. Such disengagement can usually be recognized by the clean, clear-cut rubbing of the fragments upon each other.

3. If after such manipulation and the re-application of traction, apposition is not obtained at the end of two or three days, as disclosed by roentgen-ray examination, open operation should be undertaken.

4. At open operation, the muscle or fascia bands must be removed from the fragments and good apposition obtained. If this apposition is of the end-to-end, interlocking type, only external fixation splinting is necessary. If the fragments tend to become displaced again, some solid form of internal splint must be used. Gallie's beef bone plates or Magnusen's ivory plates and screws or pegs will usually be sufficient. These are more simple to apply than the Albee graft. If they will not hold, metallic plates or bands are occasionally necessary.

F. W. CARRUTHERS, M.D.

Diez, S.: Post-Traumatic Tertiary Syphilis; Osteo-Arthritis of the Knee Due to Trauma (La sifilide terziaria post-traumatica nell'infantismo; osteo-artrite del ginocchio consecutiva a trauma). *Policlin.*, Rome, 1922, xxxix, sez. chir., 375.

The author discusses the relationship between accidental trauma and existing syphilis, especially tertiary syphilis in regions injured by trauma.

The case is reported of a man who received an injury of the internal condyle of the right femur and gave a history of a preputial ulcer, not considered syphilitic, twenty years before. The patient consistently denied syphilitic infection. A month after his accident the knee began to swell and the condition was diagnosed as an intra-articular effusion. Despite various treatments the swelling, intense pain, and incapacity continued and articular resection of the knee was finally done as the arthritis was judged to be tuberculous. Tumefaction in the area of resection, however, continued. When the patient was first seen by Diez his symptoms suggested syphilis and a Wassermann test was clearly positive. He then confessed that about one month before the injury a small nodule had appeared on the tongue but disappeared after mercurial treatment. He admitted also that his infection of twenty years previously was probably syphilitic, but there had been no further manifestations of it until the development of the tongue ulcer. Under salvarsan treatment the pain and other local knee conditions rapidly disappeared.

The author believes that this is a case of syphilitic osteo-arthritis developing in a knee after trauma. As in the majority of syphilitic arthropathies, an etiological diagnosis could be made only by exclusion and after the finding of a positive Wassermann reaction. The syphilitic infection appears to have remained latent until about the time of the injury, the

organism being in immunitary equilibrium. The injury then created an area of lessened resistance favorable to the pathogenic development of the spirochaeta. Syphilis was not clinically evident at the time of the accident and the site of the accident was exclusively the site of its manifestations. The chronological connection between the accident and the osteoarticular syphilis was sufficient in a medico-legal sense to establish the causative action of the trauma.

W. A. BRENNAN.

Schulz, W.: Complete Dorsolateral Luxation in the Metatarso-Phalangeal Joint with Subluxation in the Tarso-Metatarsal Joint and Multiple Fracture from Being Run Over (Komplette dorsolaterale Luxation im Metatarso-Phalangen-gelenk mit Subluxation im Tarso-Metatarsalgelenk und multipler Fraktur durch Ueberfahren). *Arch. f. klin. Chir.*, 1922, cxix, 126.

In the case reported the toes were luxated dorsally and laterally and the metatarsal bones were subluxated laterally in the tarso-metatarsal joint. The base of the first phalanx of the second toe and the head of the third metatarsal were broken off. There were also wounds in the soft parts of the back of the foot. As further dorsal luxation and fixation of the toes could not be prevented by the application of an extension bandage they were disarticulated in their proximal joint.

Schulz reviews also cases of dislocation of the tarso-metatarsal joint reported in the literature. Luxation in the phalango-metatarsal joint is rare as a great force is necessary to draw the toes out of their position. Because of the great elasticity of the separate parts, the toes usually return to their natural position by themselves. Because of the relatively large size of its contact surface and the extent of circumduction in its articular surface, the great toe is luxated more frequently than the others; only six cases of luxation of the other toes have been described.

The diagnosis is easily made from the deformity and the disturbance of function. The prognosis is favorable. Complications are fractures, crushing of the joint, and injuries to the soft tissues. The treatment consists in reposition and simple bandaging. If reposition by open operation is necessary it is sufficient to remove a segment from the capitulum of a phalanx or metatarsal. The most common tarso-metatarsal luxation is dislocation of the first metatarsal joint. Its frequency is due to the absence of the basal metatarsal and interosseous ligaments in the first intertarsal space.

Eighteen cases of this luxation are described, of which eight were dorsal dislocations. This luxation is favored by the absence of firm fibrous bands on the back of the foot. For its production the force must be exerted on the first metatarsus alone. If the force is exerted on the middle of the foot from the medial side the ligaments of the first metatarsal are torn first. If the force is then not exhausted, other connecting bands, and eventually all of them,

may be ruptured. Schumacher states that up to 1908 thirty-nine cases of total luxation of the tarso-metatarsal joint had been observed, and of these, thirteen were cases of dorsal luxation.

In recent cases, shortening of the foot, an abnormal arching, or a depression makes the diagnosis quite simple. In old cases in which there has been marked edema the roentgen ray must be brought into service. In uncomplicated cases the prognosis is good. The treatment is simple reposition. In interposition treatment by open operation more or less resection of bone is necessary. For some time after reposition the patient should wear a flat-foot brace so that the arch of the foot will be supported until it becomes firm. In cases in which reposition has not been effected an orthopedic shoe may be worn to advantage.

HOHNHEIMER (Z).

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Drummond, H.: The After-Results of Twenty-One Cases of Iliocolostomy Performed for Tuberculous Bone and Joint Diseases. *Brit. M. J.*, 1922, i, 342.

Because of the theory that intestinal stasis was responsible for tuberculosis of the bones and joints, iliocolostomy to short-circuit the large intestine was suggested as a method of treatment.

The twenty-one patients operated upon in this manner had not responded to any other form of treatment and were gradually losing ground. Three are known to be alive at the present time. One, who had hip disease, has been cured, while the other two have been greatly benefited.

Of the five patients who cannot be traced to date, two were known to be well two years after the operation, and the remaining three were not cured when they were last seen, eighteen months, twelve months, and three months after the operation respectively.

Three died from intestinal obstruction shortly after the iliocolostomy.

One boy with a diseased left hip joint did not improve and died as a result of amputation at the hip joint thirteen months later. The remaining nine patients died from the primary tuberculosis or tuberculous meningitis from one to five years after the operation.

RUDOLPH S. REICH, M.D.

Wieting, J.: Primary Arthroplasty in Tuberculosis (Primäre Gelenkplastik bei Tuberkulose). *Zentralbl. f. Chir.*, 1922, xlix, 589.

Wieting emphasizes the point that in tuberculosis not involving the viscera, conservative treatment is frequently carried beyond the time when surgical treatment should reasonably be begun. In tuberculosis of the knee joint in children between the sixth and twelfth years of age—all diseased bone and cartilage should be removed by a careful arthrectomy and this procedure followed at once by a fascial arthroplasty. It is of course necessary to select

notable cases and in each case an attempt must be made first to treat conservatively.

Up to the present time the author has performed the primary plastic operation in three cases and in each instance obtained mobility in spite of the fact that in one there was a slight local recurrence.

The operation is performed without loss of blood. The epiphyseal lines must be spared. Chiseled-out bony foci are filled with iodoform plugs, and then a plaster-of-Paris dressing extending from the pelvis to the toes is applied and kept on for three weeks. At the end of this time active and passive motion is begun.

Separate hospitals for surgical tuberculosis are desirable. If there is no hope of obtaining a mobile joint, operative arthrodesis should be obtained early in order to free the child from the fixation splints and dressings.

VON TAPPEINER (Z).

Simon, R.: A Biological Study of the Bone Graft
(La greffe osseuse, étude biologique). *Rev. de chir.*,
Par., 1922, 31, 207.

Early experimenters thought that living bone transplants continued to live but it was soon shown that a transplant quickly dies, becomes absorbed, and is bridged over by the living bone in contact with it. Some surgeons use living bone and others dead bone. Simon gives a résumé of his findings and those of other experimenters in clinical cases and experiments regarding the biology of the bone graft. He first deals with pediculated and free grafts of living bone from the same individual (autoplastic), from the same species (homoplastic), or from a different species (heteroplastic), and then discusses dead grafts derived from various sources.

In forty-one cases of heteroplastic live grafts the results were successful in twenty-five but some of them have been followed for only a short time. Multi-fragment grafts seem to be superior to a single large graft. Failures appear to be due to infection causing elimination (in some cases slight infection favored a good functional result), lack of union due to faulty technique or faulty immobilization, or absorption due to intolerance on the part of the host. Most of the surgeons who use heterogeneous grafts employ them as splints to guide the new growth between the fragments.

Lever has tried with some success to influence the tolerance of the graft; others have attempted to make the transplant more acceptable to the host before grafting. As experimental animals Lichteig uses swine because their food is similar to that of man. He removes the bones aseptically, frees them from blood and serum in a vacuum, washes them under pressure with normal salt solution, and keeps them in this fluid for several hours at 40 degrees C. to inactivate any albumens. Before grafting he separates the salt solution and instills defibrinated blood into the bone of the host under a pressure of 3 to 5 atmospheres. Each procedure is rigorously aseptic and lasts twenty-four hours. He cites a case of mandibular defect into which a section from the

mandible of a pig was grafted with perfect results. In this case there was absorption of the graft at the end of six months but with the absorption there was reconstruction of the bone from the sides through the graft so that at the end of a year a new mandible was formed. Roentgenologically some cases show complete necrosis of the foreign bone without a trace of regeneration.

Simon cites thirty-nine cases of homoplastic transplants derived from fetuses, cases of amputation, cadavers, etc.: (1) one case in which the transplantation of bone from the cranium of an idiot to a cranial defect resulted in a cure which, at the last report, had lasted for nineteen years; (2) sixteen shaft transplants, (3) fifteen semi-articular transplants, and (4) seven complete articular transplants, five with the synovia and capsule and two without. The results in most of these cases were good. The failures were due mostly to infection although a moderate infection may not be incompatible with a good functional result. Larger transplants are more apt to be infected than smaller transplants. There seems also to be absorption without infection; the cause of this is unknown but may be faulty apposition or displacement. Transplantation of half and whole joints has given good results but requires a great deal of careful kinetic treatment.

Some cases, such as those of Tuffier, seem to show that the graft keeps its identity for a while but soon undergoes profound changes; its structure becomes indistinct, the trabeculae of the bone pass from one fragment to the other, and the graft soon takes on the approximate shape of the bone it replaces. Histologic examination shows that the graft dies and merely directs the direction of the new growth.

With regard to autoplastic grafts Simon states that the thin osteoperiosteal grafts have little strength and are applicable only to small defects. Transplants with or without periosteum or Albee grafts (periosteum, cortex, and medulla) are applicable where strong splinting is desired immediately. He discusses also transplants of bony segments, ribs, ulnae, etc. Like the others, these grafts may be eliminated by infection but if the infection is not severe it may favor good results. They may fail also because of absorption in which the presence or lack of periosteum plays no rôle but seems to be due to the fact that some bones are better suited for transplants than others. Non-union may result from poor contact and fixation or the use of metal fixation.

If the transplantation is successful there is survival of the transplant or its death followed by repair or substitution. The evolution of the transplant can be studied clinically, roentgenologically, surgically, and histologically. In nearly all cases the graft is destined to die and serves only as an aid to regeneration. The use of dead bone has come into use relatively recently but experience has shown that bone pegs of different origin and prepared by various methods give good results. Simon recommends placing fresh bone in absolute alcohol for several days and preserving it in 80 per cent alcohol, or

boiling it in alcohol for twenty minutes twice and then preserving in alcohol until needed. He cites the results of various surgeons using dead bone for defects of different sizes. HUBERT DUNN, M.D.

Wollenberg, A.: The Operative Treatment of Arthritis Deformans (Die operative Behandlung der Arthritis deformans). *Ztschr. f. orthop. Chir.*, 1922, xlii, 275.

The author reports five cases of arthritis deformans operated on by Hoffa and himself by resection without interplantation. The subsequent examination of two of the patients seven years later showed painless and adequate mobility. The arthritis persisted just as before the operation but function was greatly improved.

For cases in which conservative treatment has failed and there is severe pain associated with marked loss of function Wollenberg prefers resection to arthrodesis. For cases of pseudo-ankylosis in poor position he does a subtrochanteric osteotomy. When the knee joint is involved he opens the joint and removes any joint bodies present. Arthrodesis should not be done. If the main deformity is in the patella and causes pain on motion of the knee joint the patella is removed entirely or all of it except a slight shell.

In the foot Wollenberg does an arthrodesis of the ankle joint, resects the talo-navicular joint, and chisels off any spurs of the head of the first metatarsal and osteophytes of the tarso-metatarsal and metatarso-phalangeal joints. SPRITZ (Z).

Tuffier: Attempts to Immobilize Tuberculous Joints by Bone Pegging (Essai d'immobilisation de tuberculose articulaire par enchevillement articulaire). *Bull. et mèm. Soc. de chir. de Par.*, 1922, xxi, 927.

Since 1916 Tuffier has made nine attempts to immobilize tuberculous joints by means of bone pegs inserted in the two bones at a point as far distant as possible from the tuberculous focus.

Living bone taken from the tibia of the patient was used in all cases except one. In the latter the peg was made from dead bone.

For sacro-coxalgia two bone pegs were formed from a piece about 12 cm. long removed from the tibia. These were inserted in the iliac wing and the sacrum. The technique varied according to the joint immobilized.

Tuffier has treated five cases of sacro-coxalgia, two cases of tuberculous tumor of the knee, and two cases of tibio-tarsal tumors by bone pegging. Some of these are described in detail.

It appears that in certain cases the tibio-tarsal articulation can be perfectly immobilized in this manner. For the knee joint it is better to employ two pegs to obtain immobilization and direct transmission of the weight of the body to the tibia without participation of the condyles of the femur. Two of the five cases of sacro-coxalgia made a complete recovery.

In conclusion Tuffier states that the method described is applicable to certain cases of tuberculous or other types of osteo-arthritis in which ankylosis is desired. W. A. BRENNAN.

Beck, O.: The Physiological Viewpoint in Transplantation of Tendons (Physiologische Gesichtspunkte bei der Sehnen transplantation). *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 64.

This is an important article, in which the older and extensive works of Lange and Vulpius and the later works of Biesalski, Mayer, and Stoffel, who are more concerned with the technical side of transplantation of tendons, are enriched by the findings of research on muscle physiology. The research of Weber in muscle tension in semiflexion of the joints, and the theories of Biesalski regarding the cross section of muscle and the length of the fibers, of Fick, Frank, and Flix regarding the length, tension and maximum force of muscles, and of Stoffel and Recklinghausen regarding muscle elasticity and contractility were tested in the gastrocnemius of the frog within the animal body and when removed. The results of initial tension, increased tension, and total tension are portrayed graphically. The facts derived herefrom and their value in the transplantation of tendons are summarized in the following statement:

"The limitation of the action of a muscle is its strength and degree of shortening. Its strength depends alone on its cross section. In the same muscle it changes with the length of the contraction; when the length is increased beyond the natural length in a state of tension, it increases to a maximum, but when the muscle is stretched beyond the physiological extent (initial tension), which it undergoes within the body in antagonistic position of the joints it falls rapidly.

"It therefore follows that when in transplantation of tendons we would reckon on a full substitution for a paralyzed muscle, the muscle transplanted must possess the same physiological cross-section as the one that was paralyzed, since the arm of the lever will be the same length as that of the paralyzed muscle. I believe the claim to be physiologically justified that the transplanted muscle, if of equal or somewhat greater fiber-length and physiological initial tension, must have a transverse section at least one-half that of the paralyzed muscle if we are to count on results. The transplanted muscle must have at least the same length of fiber as the paralyzed muscle as otherwise, in order to extend the muscle to the antagonistic position of the joint, the antagonists would be required to exert too great a force to produce the initial tension; on the other hand, the transplanted muscle loses much in contractile power if the primary tension is too strong.

"The transplanted muscle should be affixed to its proper place in the articular structure without undue tension, the joint being in the resting position under moderate initial tension. The weight of the individual muscles is of no value in indicating the force these muscles will be able to exert. Neither is it

probable that any useful results can be obtained by counting the nerve fibers which enter into the individual muscles." ENGLISH (Z).

Billington, R. W.: Tendon Transplantation for Musculospiral (Radial) Nerve Injury. *J. Bone & Joint Surg.*, 1922, 14, 158.

Billington cuts the pronator radii at its insertion and attaches it through a buttonhole opening into the extensor carpi radialis longior and brevior. This is done through a 4-cm. incision along the radial border of the forearm. During suture the tendons are kept under slight tension with the wrist in full hyperextension. Next, the flexor carpi ulnaris is cut at its insertion, freed up to 6 cm. above the wrist through an incision along the inner border of the forearm, carried to the dorsal aspect of the ulna, pulled through a subcutaneous tunnel in a line as straight as possible, and fastened by the buttonhole method to the extensor minimi digiti and extensor communis digitorum tendons which have been exposed by dissecting a flap of skin upward from a transverse incision on the dorsum of the wrist. The flexor carpi radialis is then exposed and cut at its insertion at the radial edge of the skin flap, pulled out through a small incision about 9 cm. above the wrist, carried back through a new channel under the skin to the dorsal side of the radial styloid and buttonholed through the extensor ossis metacarpi pollicis and the extensor brevis pollicis. Its free end is then sutured end-to-end to the extensor longus pollicis which has been cut at the proper level.

After the operation the hand is put in a splint maintaining full extension of the fingers, hyperextension of the wrist, and full abduction of the thumb. After about two weeks the splint is removed but the position is preserved while the patient is instructed to begin slight contractions of the transplanted muscles. The splint is then re-applied and this procedure is repeated daily until the patient learns to use the transplanted muscles in their new function. In about ten weeks, depending on the progress made and strength of the muscles, the splint is left off entirely.

No effort is made to preserve the tendon sheaths but no trouble with adhesions has been experienced. Emphasis is placed on the importance of securing proper tension of the tendons which are sutured together, obtaining good alignment, and covering the sutured points with fascia.

The operation is recommended for all cases of injury to the radial nerve in which satisfactory suture of the nerve is impossible. It is essential to overcome all stiffness of the wrist and fingers and to free the soft tissues from scars and edema before the tendon operation is undertaken. The extensor indicis tendon is not included in the anastomosis with the flexor carpi radialis because it is considered best to concentrate on obtaining free thumb motion which is most important for a good grasp and which would be hampered by including the indices.

WILLIAM A. CLARK, M.D.

Bethe, A., and Kast, H.: The Innervation of Antagonistic Muscles in Man According to Experiments on Patients Operated on by the Sauerbruch Method (Die Innervation antagonistischer Muskeln des Menschen nach Versuchen an Sauerbruch Operierten). *Klin. Wochenschr.*, 1922, 1, 582.

The experiments were carried out on five patients subjected to amputation who had channeled biceps and triceps and on one who had channeled flexors and extensors of the hand. As reflexes could not be excited the registered muscular movements were voluntary. The movements of both muscles could be carried out in the same direction or in opposite directions and either as contractions or extensions. This is in agreement with the findings in animal experiments.

The experiments were successful in proving Sherrington's reciprocal innervation, viz., that one muscle becomes relaxed when the antagonistic muscle contracts, a phenomenon which can be proved positively only in muscles which have been divided at their points of insertion. HAGEMANN (Z).

Rokitzi, W.: Arthrodesis of the Shoulder Joint (Arthrodesis des Schultergelenks). *Verhandl. d. Chir. Pirogoff Ges.*, Petrograd, 1921.

The great number of failures and recurrences following arthrodesis (50-30 per cent) is attributed by the author to the fact that in the usual methods of operation the mechanical laws of structural technique are absolutely ignored. The problem of fixing at a definite angle of two lever arms connected by a joint may be solved technically by a variety of methods.

In a straight-line union (180 degrees), investing the joint with a circular socket joint gives the greatest security. For fixation at an angle of 180 degrees the best and simplest method is the insertion of a wedge on the flexion side or splinting by means of plates on the extension and flexion sides. Splinting on one side is not free from technical objections, and a central joining of the ends is entirely impractical from a mechanical standpoint since the ends give way the more easily the nearer the fixation to the axial center. Nevertheless it is this last method, in the form of intra-articular ankylosis, which is most generally used. Hence the many failures.

Rokitzi had worked out operations adapted to the ankle and knee joints which are based upon the principles of structural technique and experience in plastic surgery. The large number of operations performed with uniformly good results by others as well as by himself, and the roentgenological evidence of an increase in thickness and fixity of the bony wedges under functional demands, led Rokitzi to attempt a similar method for the shoulder joint. In 1921 this method, having been worked out on the cadaver, was applied successfully to a case of comminuted fracture of the head of the humerus with paralysis of the axillary nerve. The technique

is as follows: The patient is placed on his side with his arm in abduction at a right angle. The skin incision is begun on the upper arm and extended longitudinally along the posterior margin of the axillary fossa, exactly along the border of the latissimus dorsi, and downward to a point two finger-breadths below the angle of the scapula. From the latter point it is turned and extended mesially for a few centimeters. The thoracodorsalis nerve is avoided and the corresponding vessels are ligated. In the upper angle of the wound incision is then made to the site of insertion of the latissimus dorsi in the humerus and the tendon is divided as far as the bone, beginning at the upper border and proceeding downward $1\frac{1}{2}$ cm. in order to avoid the vasa circumflexa. The periosteum having been loosened on both sides a hole is bored into the medullary cavity with the Stille drill and a tampon introduced temporarily. Thereupon the border of the latissimus muscle is notched about two finger-breadths to correspond to the horizontal terminal process of the skin incision, and the mesial border of the lower angle of the scapula is grasped and forcibly drawn out of the wound.

The entire lateral border of the scapula as far up as the neck is then laid bare with the knife, with care not to damage the periosteum, and a wedge of bone 2 cm. broad is cut out with Liston's scissors and a hollow chisel. The lower end, containing the angle of the scapula, is inserted into the drill hole in the humerus with proper support, the cut surface of the wedge being directed posteriorly. The other end of the wedge is affixed in a notch in the spongy bone made as high up as possible on the chiseled surface of the scapula, the arm being in maximum abduction. The skin is then sutured and a plaster-of-Paris dressing is applied with the arm in maximum abduction. The dressing is kept in place for six weeks.

Goldthwait, J. E.: "Flat Hand" (Manus Planus): Its Correction Essential to Normal Function of Hand. *J. Bone & Joint Surg.*, 1922, XX, 469.

Normally the proximal row of the carpal bones forms an arch with distal and anterior concavities. If the distal concavity is flattened, the os magnum and uncinatum which fit into it will be pushed distally and as a result the second row of the carpus, which normally presents a horizontal line distally for articulation with the four medial metacarpals, becomes an arch with its convexity pointing distally. Hence, when these fingers flex, instead of forming a compact group around the middle finger and becoming contiguous, they spread apart, producing a weak mechanical unit. The same ineffectual position is reached by the thumb when the conical surface of the trapezium, upon which the thumb pivots in adduction and abduction, instead of being in the horizontal plane, faces obliquely laterally in the flattened arch. The most secure position of the thumb in grasping objects is flexion at the metacarpophalangeal joint but extension at the carpo-

metacarpal joint in line with the cone of articulation of the trapezium. If the cone is displaced laterally the muscle pull tends to slide the metacarpal off the trapezium and strain the joint by causing hyperextension.

Normally the long flexors of the fingers pull around the medial side of the trapezium and the lateral side of the uncinatum as pivots. If these bones have rotated away from the center of the arch the tendons slip over their curved surfaces into the soft tissues and tend to flatten the arch further and depress the normal fulcrum. The extensor pollicis longus slips off the angulation of the hyperextended thumb and is strained in its groove at the outer side of the lower end of the radius, causing pain.

The treatment consists in restoring the arches to their normal contour by retaining them in this position by improving the tone of the muscles by massage. A wrist strap is applied which has lateral pads between which the extensors of the thumb play. A band from strap encircles the thumb, holding it in abduction.

The results are seen in the X-ray picture which shows a much more compact and laterally narrowed carpus with a transverse, straight metacarpo-carpal joint.

DAVID TELSON, M.D.

Della Vedova, R.: Tenodesis of the Quadriceps Femoris by Synostosis of Femur and Patella (Della tenodesi nel quadricipite, mediante sinostosi femoro-rotulea (nuovo processo operativo). *Ann. ital. di chir.*, 1922, I, 113.

In cases of paralysis of the extensors of the thigh which are due usually to anterior poliomyelitis and in which extension cannot be accomplished by transferring the kinetic energy of other muscles to the patellar tendon, ankylosis of the knee joint is desirable. In 1887 Albert obtained ankylosis by uniting the articular surfaces, but this cannot be done in young persons without the risk of incomplete union. There is danger also of arresting the growth of the bones as it is necessary to sacrifice a considerable amount of cartilage to obtain bony contact for union. Therefore the method should be used only after the eighteenth to twentieth years of age and is absolutely contra-indicated before the twelfth year.

Having observed restoration of function by operation in a case of inflammatory union between the patella and the trochlea of the femur (facies patellaris), Della Vedova reasoned that in flail joints union between the patella and the femur with the leg in extension would give a functional ankylosis. He makes an incision along the internal margin of the patella up to the quadriceps bursa, pushes the patella aside and removes the cartilage on its posterior surface down to the bony substance. He then repeats this procedure on the facies patellaris which extends, when the leg is extended, to the upper patellar margin. Accurate hæmostasis is obtained and the wound sutured in two layers. After the operation the leg is immobilized in extension in

plaster cast for sixty days and then for four to six months given physiotherapeutic care.

The procedure is not difficult and is applicable to small patients. The immediate results are good as regards functional ankylosis but only prolonged clinical observation will decide whether it affects the growth of the bone. Della Vedova has operated upon three cases of ball joints in this manner but not enough time has elapsed to warrant an opinion as to the end results. The method does not preclude arthrodesis at a later time. In Della Vedova's opinion the removal of only the superficial layers of the cartilage from the facies patellaris, which is largely above the epiphyseal line, can have little effect on the growth of the shaft. This fixation of the tendon (Codivilla) or tenodesis (Reiner) is being applied to the ankle by Vasselli, to the wrist by Perthes, and to the knee by Saxl.

HUBERT DUNN, M.D.

Nassetti, F., and Pizzetti, D.: Autoplasties with Pre-Formed Cutaneous Canals (*Autoplastiche con canali cutanei preformati*). *Ann. ital. di chir.*, 1922, I, 369.

Nassetti and Pizzetti state that their procedure is entirely new. The cutaneous or mucous autoplasties made to repair or reconstruct mucous canals or to canalize stumps with a view to cinematization do not always give good results even with the best technique. The authors construct a cutaneous canal in a selected region following exactly Pellegrini's method for the construction of cutaneous bridges for cinematization purposes. Their method is new in that after cicatrization the whole cutaneous canal is removed to the new position in which it is required. It is then nourished by a cutaneo-spongiotic strip to which it is kept adherent. Thus it is treated like a pedunculated skin strip, one mouth of the canal corresponding to the pedicle and the other to the free end. When the canal is completely isolated in its site (except for the pedicle) it is flexed and mobilized to its new subcutaneous bed and the old site is sutured.

The procedure is completed by the formation of muscle and tendon loops as in the classical Vanghetti cinematization operations.

W. A. BRENNAN.

Rohde, C.: The Commminutive Plastic of the Tibia in Severe Rachitic Deformities with Pseudarthrosis; Also Some Remarks on the Regeneration of Bone (*Kommminutivplastik der Tibia bei schweren rachitischen Deformitäten mit Pseudarthrose, nebst einigen Bemerkungen zur Knochenregeneration*). *Arch. f. orthop. u. Unfall-Chir.*, 1922, XI, 281.

In cases of severe rachitic deformities of the lower leg in which the usual osteotomies do not give the desired results, the author applies the method which was first proposed by Voelcker for the treatment of pseudarthroses and later used by Loeffler for the treatment of rachitic deformities. After exsanguination of the part, he makes a longitudinal incision

over the deformed tibia down to the bone, carefully raises the periosteal tube of the tibia without separating it from the surrounding soft parts, resects the tibia with a Gigli saw throughout the area of the deformity, and fractures the fibula. After splitting of the resected bone and removal of the cylinder of marrow in toto, he implants the latter in the empty periosteal tube, breaks up the compact portion of the bone into the smallest possible splinters, and lays one-half to two-thirds of these splintered fragments in the periosteal tube beside the bone marrow. He then sutures the periosteal tube and soft parts and applies a plaster-of-Paris dressing.

Rohde bases his work on animal experiments which showed that in old animals, after subperiosteal resection of a bone of the anterior extremities, the periosteum alone or with the marrow callus was unable to bridge over a defect of 2 cm., whereas in young animals a defect of the same size in the periosteal tube was completely bridged over. The regeneration was still greater in young animals when the marrow of the portion of bone resected in toto and single minute splinters of the compact portion of the bone were introduced into the periosteal tube.

In the case of a girl 16 years old on whom an unsuccessful wedge-shaped osteotomy was done four months previously for a most marked rachitic deformity of the right lower leg, and who then had a pseudarthrosis, the method described gave an excellent permanent result.

MAU (Z).

Schulz, O. E.: The Treatment of Large Defects of the Tibia (*Behandlung grosser Defekte der Tibia*). *Časop. lēk. česk.*, 1922, LX, 348.

The patient was a 13-year-old girl who had had a number of operations eighteen months previously for acute osteomyelitis of the left tibia. Healing had occurred with loss of the diaphysis; the length of the defect was 16.5 cm. The left leg was 2 cm. shorter than the right. Beneath the wide scar extending the entire length of the tibia long, thin, separate pieces of bone adherent to the scar could be felt. Hyperextension to 220 degrees was possible.

Operation consisted of extirpation of the scar and the newly formed bony pieces adherent to it followed by the implantation of the tibular diaphysis into the tibial epiphyses with retention of bridges of periosteum. Six weeks after the operation the patient began to walk. By the end of eight weeks after the operation the tibia had become firmly adherent to the fibula and the fibula was thickened by periosteal apposition. Thirteen weeks after the operation nothing more could be seen of the fibular transplant. The tibia was from 9 to 21 mm. broader than before the operation.

KUMR (Z).

MacAusland, W. R., and Sargent, A. F.: Transplantation of the Fibula. *Ann. Surg.*, 1922, LXVI, 91.

The authors give a detailed report of their results in the transplantation of the fibula for loss of the tibia due to osteomyelitis and other causes.



Fig. 1. Point of division of fibula preparatory to transplantation.



Fig. 2. Transplant in place.



Fig. 3. Point of division of lower fibula preparatory to transplantation.



Fig. 4. Transplant of lower fibula in place.



Fig. 5. Result of transplantation.

The value of such transplants are:

1. The danger of infection following a small exposure is slight as compared with that of a tibial graft.

2. Failure is practically impossible because the blood supply to the fibula is not disturbed.

3. The bone rapidly hypertrophies to take up the added weight and leaves no defect from the absence of the fibula.

4. Fracture of the graft is impossible.

The transplantation of the entire fibula is done only in cases in which no regeneration follows osteomyelitis of the tibia.

After careful preparation of the leg, an incision 3 in. long is made between the head of the fibula and the head of the tibia (Fig. 1) with care not to injure or divide the peroneal nerve where it passes over the fibula. The remaining tibia is cupped out to take the fibula graft. A longitudinal slit is then made in the periosteal covering of the upper fibula and the outer half gently freed from the fibula. An osteotomy of the fibula is done as high as thought practical, and by means of heavy traction the fibula is pried into the tibial cup. It is usually best to deepen the cup a little to obtain better and quicker union (Fig. 2).

The periosteum on the outer side of the fibula being left attached to the remaining fibula head and the outer transplanted shaft, a periosteal bridge is formed which will often develop a bony bridge, thus more efficiently uniting the fibula and tibia.

The use of wire is unwise as union is always delayed in the presence of a foreign material. The wound is closed in the usual manner and a plaster cast applied from the toes to well above the knee. This cast is left on for two months, after which a similar operation is performed on the lower leg (Figs. 3, 4, and 5).

As a rule weight-bearing is permitted two months after the second operation, and either plaster or a caliper brace is used for a period of six to eight months.

The rapidity with which bone hypertrophy occurs in the fibula is surprising.

F. W. CARRUTHERS, M.D.

SURGERY OF THE SPINAL COLUMN AND CORD

Forbes, A. M.: *The Operative Treatment of Scoliosis*. *J. Bone & Joint Surg.*, 1925, IV, 446.

Forbes states that the work of Abbott of Portland in 1911 and of Fols of Cleveland greatly stimulated the study of scoliosis.

In 1911 the author drew attention to the fact that rotation of the thorax in one direction causes a paradoxical rotation of the vertebrae in the opposite direction. He attempted to evolve a scheme for the treatment of pathologic scoliosis by means of an opposite physiological scoliosis. This failed as all other methods of curing scoliosis have failed after structural changes have occurred.

The report of the Scoliosis Committee of the American Orthopedic Association drew attention to the fact that in two cases out of six treated in jackets by the rotation method collapse occurred

when the jacket was removed. The author believes that there are many cases of scoliosis which do not respond to any known method of treatment, and that future treatment will tend toward operative methods. The operation should be selected from a standpoint of etiology: (1) unstable base (variations in the strength and shape of the fifth lumbar vertebra); (2) loss of stays (muscular weakness or paralysis); (3) congenital malformation of the vertebrae. Cases suitable for operation are those which are becoming progressively worse and those in which only temporary improvement can be obtained by non-operative means.

In cases of scoliosis, two forms of operation are indicated: (1) the correction of the shape of the vertebra at the base of the spine, and (2) fusion of the spine.

To accomplish the first, the author suggests the possibility of the abdominal approach. For the second, the Albee or Hibbs operation and the operation described in the *Journal of Orthopedic Surgery* for September, 1920.

A patient whose vital organs have been functioning at a disadvantage must not be subjected to a lengthy operation. It is best to operate in two stages. The etiology should always be borne in mind.

After operation the spine is placed by traction and rotation in the greatest possible correction, and a jacket applied while the patient is still under the influence of the anæsthetic.

In ten cases operated upon there was one death from pneumonia. A bony fusion has been found on several occasions at subsequent operations. All of the patients have shown an increase in height and have claimed improvement in their general condition.

ROBERT V. FUNSTEN, M.D.

Sorrel, E.: The Treatment of Pott's Disease (Quelques considérations sur le traitement du mal de Pott). *Presse méd.*, Par., 1922, xxx, 378.

The author compares the classical with the surgical treatment of Pott's disease. In the classical treatment of the tuberculous spine outside the general treatment the results will be obtained most rapidly by continuous recumbency, in some cases with a lumbar support in the dorsal position; in lumbar or lumbosacral Pott's disease in the ventral position; in mid-dorsal or upper Pott's disease by decubitus with the application of a fenestrated compressive corset; and in cervical and suboccipital Pott's disease by decubitus and a plaster cast extending to the child's ears and the occipital tuberosities.

In the case of the child with Pott's disease surgical measures are useless and may be harmful. In the adult, however, the anatomical result in the active period of the disease is different, and as a general rule anatomical recovery does not occur. For the adult the treatment should be the same at first as that given the child. Recovery is always less sure, however, and it is more difficult to determine when it has taken place. Therefore when the patient is first permitted to walk, every precaution must be taken to immobilize the posterior arches.

Hibb's operation is not quite so harmless as it has been made to appear. For this reason the Albee operation has been generally preferred. When Albee's instruments are used the operation can be done rapidly and may be considered as almost entirely innocuous. Ankylosing operations should be done only on the adult and when the active period of the disease has passed. Many cases of Pott's disease in childhood continue to evolve without total ankylosis, whatever treatment is used. When the patient reaches adolescence an ankylosing operation may be considered, but if the condition is dorsal Pott's disease with a marked gibbus and fan-shaped spinous processes care is necessary because if these processes are not well developed it would be danger-

ous to split them to form a bed for a graft and there is danger of opening the spinal canal.

The immobilizing and surgical methods of treating Pott's disease are not necessarily opposed, but each type of treatment has its own indications.

W. A. BRENNAN.

Radulesco, A. D.: Operative Vertebral Synostosis in the Treatment of Pott's Disease (La synostose vertébrale opératoire comme traitement du mal de Pott). *Rev. d'orthop.*, 1922, ix 3 s., 305.

Radulesco reviews the various operative and mechanical methods which have been used in the treatment of Pott's disease and describes a new method of his own, viz., vertebral synostosis.

In the cases of adults spinal anæsthesia is employed while in those of older children and of adults with upper dorsal or cervical lesions local novocaine-adrenalin anæsthesia is sufficient. The operation consists of six steps as follows:

Step 1. With the patient in ventral decubitus a median incision is made exceeding the extreme limits of the vertebral gibbus by several centimeters. Two paramedian incisions are then made the entire length of the wound at the sides of the spinous processes to disinsert the muscles of the vertebral apophyses. The apophyses and vertebral laminae are completely stripped of their periosteum.

Step 2. The interspinous ligaments are sectioned with the bistoury.

Step 3. The processes are split vertically with an electrically driven circular saw. The cut is carried through their entire length so as to split them into two equal parts. The cut halves are turned back laterally. The six or eight osseous segments then form a bony bed 3 to 4 cm. wide and the spinal cord is exposed. The bone graft will be placed on this surface.

Step 4. A bone graft is cut from the eighth or ninth right rib almost as wide as the rib and equal in length to the bed prepared for it. The graft is about half the thickness of the rib but does not extend beyond the spongy tissue.

Step 5. The costal wound is closed.

Step 6. The graft is placed in its bed so that the medullary parts approximate each other and is fixed

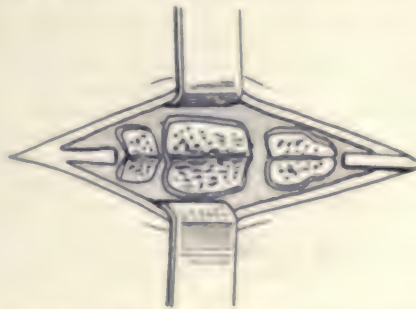


Fig. 1. The sectioned halves of the processes are turned back laterally.



Fig. 2. Placing the costal graft in its bed.

in position by suture of the muscular and aponeurotic tissues. The operative wound is then closed without drainage with silk and catgut.

Lordosis of the region is effected by the use of pillows. The patient is then kept in dorsal decubitus for about a month. Electrotherapy, massage, and re-education are employed. After several months paraplegic and bedridden patients are allowed to make their first attempts at walking with a cane. The use of a rigid orthopedic corset, aerotherapy, and heliotherapy is advised.

In the author's opinion Albee's method is unsuitable in the dorsal region because the spinous processes there are rather short and narrow and the tibial graft cannot be well fixed. Moreover, if the gibbus is very marked the graft must be broken in order to give it the necessary curve. The chief disadvantage of the method is the fact that its outcome is dependent on the survival of the graft. If the graft is fractured, the deformity becomes greater than before.

In the author's opinion a costal graft has many advantages over a tibial graft.

Up to the present time twenty-five patients have been operated upon by the Radulesco technique. Most of them were adults or adolescents in advanced stages of Pott's disease. Some were operated upon by the author and others by Jacobovici and Ursu. They included paraplegic patients and those with other severe complications. The results have been generally very good. Two or three months after operation some of the patients were able to walk without a protective apparatus. Disappearance of the gibbus in these cases made the aesthetic result very satisfactory. No other operative method is as successful in this respect. In one case the graft was eliminated because of suppuration. In another a cold abscess with a subsequent fistula formed four months after operation at the site of the graft. This graft no doubt will be destroyed. W. A. HERNAN.

Gray, H. M. W.: Remarks on Bone Grafting as an Aid in the Treatment of Tuberculous Spinal Caries. *Brit. M. J.*, 1922, 1, 73.

The indications of Hibbs and Albee for bone grafting are in the main accepted. In the cases of

adults the great advantages of the internal bone splint are the saving of a year or more of recumbency and the lessened possibility of the growth of abscess and spread of the disease.

The operation performed is a modified Albee. The fixation of the extreme posterior end of the vertebral spines in the Albee cannot control all movement in the affected bodies at the other end of the articular fulcrum. A plaster of Paris body shell is made the day previous to the operation. The erector spinae are infiltrated with $\frac{1}{2}$ per cent novocaine solution with adrenalin to minimize oozing and control shock. The operation is often performed under this local anesthesia alone. The skin is incised, the spine and laminae are exposed, and the periosteum is rolled to the side. The exposed bone is roughened by small irregular incisions made with a chisel and raising of the edges of these incisions along the bed of the graft at the junction of the spinous processes and laminae. Gauze strips are used to tampon the dorsal incision while the graft is cut. Two wedges whose bases comprise three-quarters of the breadth of the anterior tibial surface are chiseled out, drill holes being made $\frac{1}{8}$ -inch apart along the chisel line. The length of the graft has no relation to the extent of the spinal disease, but is as great as the length of the tibia allows. The grafts are placed along each side of the vertebrae in the prepared bed wherein the bone dust from the drilled holes has been sprinkled. The wound is closed in layers without drainage.

By this method a wide area of roughly chiseled raw bone undamaged by the cauterizing effect of the hot, rapidly rotating bone saw and aided by the known osteogenic properties of bone dust is approximated to a wide area of chiseled bone directly over the articular process of the vertebra.

The postoperative treatment is conservative. Walking and even sitting erect are forbidden for from four to six months. The results in the twenty-eight cases operated on in the past ten years are entirely satisfactory as checked by the anatomical, physiological, and roentgen-ray criteria.

DAVID TELSON, M.D.

Savariaud: A Case of Death Due to Shock Following a Bone Grafting for Pott's Disease (Un cas de mort par shock à la suite d'une greffe osseuse pour mal de Pott). *Bull. et mém. Soc. de chir. de Paris*, 1922, XLVIII, 965.

Savariaud's case was that of a man of 34 years with dorsal Pott's disease. The patient's general condition was good except for pulmonary emphysema. The gibbus involved several vertebrae. There was a mediastinal abscess. The disease had been present for three years.

At lumbar puncture under spinal anesthesia only a few cubic centimeters of cerebrospinal fluid could be withdrawn instead of the usual 20 to 25 c.c.m. A graft was removed from each tibia. The vertebral stage of the operation was done under ether anesthesia with the patient in ventral decubitus. His

respiration was not good, however, and the operation was attended by a severe loss of blood despite the repeated use of tampons. At each vertebra two or three arterioles bled profusely. The hypertrophy of the spinous processes rendered the formation of the graft bed difficult. The operation consumed two hours. When the patient was returned to his room, he was pulseless. When he awoke he became violently agitated. In spite of stimulants, he died in extreme agitation after about three hours.

In this case a strong dose of cocaine was injected to obtain high anesthesia. This may have been the real cause of death but the author doubts it. He is of the opinion that, in the adult at least, exposure of the vertebral channels for an extent of 35 cm. on each side and the removal from each tibia of a bone graft of appropriate size is not as slight an intervention as is generally believed. He doubts that the ankylosis produced is of sufficient advantage to generalize the practice of such a serious operation.

W. A. BRENNAN.

Solomon, E. P.: Report of Two Cases of Broken Back. *Internat. J. Surg.*, 1922, xxxv, 168.

The author reports two cases of broken back with good recovery. The first was that of a negro laborer who was struck upon the back of the neck by a falling girder. On admission to the hospital the patient was in shock, cyanotic, and dyspnoic. Complete motor paralysis developed. The X-ray showed pressure upon the cord exerted by the seventh cervical arch. Operation relieving the pressure resulted in complete recovery within a year.

The second case was that of a white miner upon whom a large rock fell, striking the lumbar spine. Motor paralysis was complete. Laminectomy corrected all symptoms. A year later the patient reported full recovery except for weakness in his hips.

J. R. MITCHELL, M.D.

Willard, H. S.: Fractures and Dislocations of the Spine with Report of Five Cases. *Northwest Med.*, 1922, xxi, 206.

It is the purpose of this paper to outline briefly the general indications for operative treatment in fractures and dislocations of the spine.

Operative interference is contra-indicated in complete severance of the cord, the symptoms of which are immediate and complete motor and sensory paralysis persisting even after a period of rest.

The futility of operation is more clearly shown when the bony deformity in the X-ray indicates a break in the cord. Because of its high mortality on the operating table cervical fracture should be treated operatively only in rare cases.

Operation is indicated for all fractures in the lumbar region with cord injury as the cauda equina is composed of a bundle of ordinary nerve trunks with medullated fibers which will regenerate after being reunited. It is indicated also in partial transverse lesions which are manifested by delayed

paralysis below the site of injury and in which the edema or hemorrhage later causes complete paralysis. The interval required for absorption of the edema and hemorrhage, often two to five weeks, causes irreparable damage to the cord. Seventy-two hours of obstruction of the circulation by pressure due to hemorrhage will cause the death of nerve tissue.

Fracture or dislocation without symptoms of cord injury should be treated conservatively by immobilization unless, as in lumbar fracture, the pain due to bony crush is sufficient to necessitate bony splinting. Bony splinting is held by the author to be of doubtful value.

DAVID TELSON, M.D.

Henderson, M. S.: Osteoma of the Cervical Spine. *J. Bone & Joint Surg.*, 1922, xx, 518.

The case reported was that of a boy 10 years of age who, for four months before operation, complained of severe pain in the posterior aspect of the neck, a slight rise in temperature, and redness, swelling, and increasing flexion of the neck. Examination revealed a hard, bony tumor in the right cervical region at about the level of the third cervical spine.

Operation disclosed a circular tumor about 5 cm. in diameter attached to the spinous and lateral processes of the third cervicle vertebra on the right side.

Pathologic examination revealed a fibrous capsule with trabeculae running into the surrounding muscle tissue. The interior of the growth was composed of bone and fibrous tissue. There was no evidence of origin from cartilage but some osteoblasts were present.

DAVID TELSON, M.D.

Hintze, A.: The "Lumbo-Sacral Fontanelle" and Its Relationship to Spina Bifida Occulta (Die "Fontanella lumbo-sacralis" und ihr Verhaeltnis zur Spina bifida occulta). *Arch. f. klin. Chir.*, 1922, cxix, 409.

Hintze first discusses all the previous observations and views on spina bifida occulta. The cases reported in the literature he classifies into three groups: (1) those with a suspected cleft in the posterior sacral arches, (2) those in which a cleft was demonstrated at operation, and (3) those in which the defect was demonstrated anatomically.

Virchow, in 1875, was the first to call attention to local hypertrichosis and the presence of a defect in the sacral region. Soon thereafter the clinical syndrome (lumbosacral hypertrichosis, neuroparalytic disturbances of the lower extremities, and a cleft of the vertebral arch) was established. Fuchs went a step further by establishing the syndrome of myelodysplasia as a new disease picture.

Hintze examined about 150 skeletons of anthropoid apes, 1,100 human sacra of all ages, and 700 roentgenograms. In 400 cases none of the conditions heretofore associated with spina bifida occulta were clinically demonstrable. The frequency of the different kinds of bone clefts of the lumbo-sacral

vertebral arches and their distribution with regard to the different periods of life are shown in five tables. Hiltze then reviews the most common developmental processes of arch closure of the lumbosacral region and discusses the significance of the ossification clefts (Diarsus lumbosacralis, hiatus lumbosacralis secundarius, hiatus intermedius, fontanella lumbosacralis) as analogues of the cranial fontanelles in man. Then follows a discussion of the correlation of pathologic defects of ossification in the vertebral arches and the flat cranial bones and those of rachiosis occulta to the meningoceles. Hiltze believes that, with the exception of the cleft which involves the entire breadth of the sacral canal as in open spina bifida, it cannot be determined with certainty from the visible form of the arch stumps and the breadth of the cleft noted in the roentgenogram whether it is a matter of persistent rachiosis or a rudimentary fontanelle. On the other hand, arch stumps bent backward only a little suggest a rudimentary spinal cord stump. A myelodysplastic syndrome demonstrated by clinical phenomena is confirmed by the roentgenological evidence even though myelodysplastic symptoms may occur when a cleft is not demonstrable in the roentgenogram.

Hiltze believes that the presence of a depression in the skin, a pigmented spot, or a local trichosis in the region of the sacral arch is very important; these denote a primitive cleft formation even when no myelodysplastic symptoms are associated with them. The X-ray frequently shows cleft formations in children when in reality none is present. On the other hand, clefts may exist in children and adults without appearing in the roentgenogram; as when, for example, one of the deviating arches, usually the lower which later appears as forming a spinous process, is placed over the other half of the arch so that in a sagittal exposure they appear as one arch.

The article contains numerous excellent illustrations.

RIEDER (Z).

Schaller, W. F., and Weeks, A.: The Successful Removal of an Extra-Medullary Cord Tumor in the Lower Dorsal Region. *California State J. M.*, 1937, 33, 714.

Fourteen months previously, the patient, a man of 45 years, first noticed a superficial pain in the lower part of the abdomen on the left side and extending from the umbilicus to below the costal margin. This pain, which was more or less constant, was sometimes lancinating, often radiating to the back, and always worse at night. Walking and sitting seemed to relieve it. As lying in bed caused great pain, he stood or sat at night. Arising from a sitting or reclining posture was particularly painful. Progressive paraplegia developed, beginning with weakness and muscular atrophy of the left lower extremity and buttocks and finally extending to the right lower extremity so that the patient could not stand without support. Atrophy was marked in the gluteal and posterior thigh muscles. The

paralysis first affected chiefly the flexor muscle groups. Later the extensor muscles became affected by the paralysis. In the sitting position an attempt to contract the abdominal muscles revealed muscular flaccidity of both recti muscles below the umbilicus.

On palpation of the intercostal spaces during expiration the fingers could be deeply pressed in between the ribs of the eighth, ninth, and tenth intercostal spaces but higher the firm resistance of normal intercostal muscle-tonus could be felt. The tendon reflexes of the lower extremities were hyperactive. There was no clonus. The Babinski reflex was positive on both sides. The Oppenheim reflex was questionably positive on the right side. The abdominal reflexes were doubtfully present. Pain and temperature were altered on both sides below D_{10} . Heat and cold were confused at times. A pin prick was identified as a point but not often as pain. The lowest sacral root innervation was conserved in the perineal, riding breech-design area. Deep sensibility was affected, particularly for vibration sense. Bladder and sphincter control was maintained. There was marked constipation or so-called colonic crises.

The spine was held rigid but there was no lumbar muscle spasm. There was tenderness on percussion over the seventh dorsal spine. X-ray examination of the spine was negative. Lumbar puncture yielded a clear fluid containing twenty-nine cells per field. There was no increased tension. The Nonne and Noguchi tests for globulin were strongly positive. The Wassermann tests of the blood and spinal fluid were negative. The blood pressure was 150 systolic and 90 diastolic. There was edema of both feet which was largely relieved by posture.

The condition was diagnosed as an extramedullary tumor situated on the posterior and left aspect of the cord between the ninth and eleventh dorsal segments.

During laminectomy the fifth to ninth spinous processes and laminae inclusive were removed. At the level of the eleventh dorsal cord segment and opposite the eighth dorsal spine a soft, friable, intradural, extramedullary tumor, 3 by $1\frac{1}{2}$ cm. in size, was seen compressing the cord on the left lateral surface. While it was being excised the tumor broke into two portions.

The patient withstood the operation well and about eleven months later had completely recovered. Convalescence was complicated by anasarca, toxic polyneuritis, and decubitus ulcers of both hips and the sacral region.

The removal of five spinous processes and laminae has not appreciably interfered with the free motion of the spine.

The authors recommend placing the patient immediately in the prone position following spinal operations for paralysis because of the danger of the formation or extension of decubitus ulcers.

The histologic diagnosis of the tumor by Ophuels was glioma.

WALTER C. BURKE, M.D.

SURGERY OF THE NERVOUS SYSTEM

Turbin, W.: Leriche's Peripheral Sympathectomy in Severe Cases of Causalgia (Die periphere Sympathektomie nach Leriche in schweren Fällen von Kausalgie). *Klin. Med.*, 1920, i, 1.

Because all attempts to treat causalgia conservatively gave only very unsatisfactory results, operation was resorted to long ago in the treatment of this trouble. Denkman amputated the entire arm. In 1878 Sklifosowski resected the ulnar nerve in causalgia of the upper extremity but without success, for soon after the operation the pain returned. In the Russian-Japanese war Oppel resected 14 cm. of the median nerve, but the pain did not disappear until many months later.

In some less severe cases the conservative operation of neurolysis may be successful, but in severe cases it has failed. Rusomoffski and Sicard supplement this operation with the injection of 70 per cent alcohol. The combined procedure has yielded good results in many cases, but there is one class, fortunately small, in which every type of treatment has failed entirely. Eight extremely severe cases of this type were observed by the author in the Moscow Traumatological Institute during the last war. Leriche's peripheral sympathectomy was performed in these cases.

On the theory that causalgia is a neuritis of the sympathetic nerve, Leriche proposed removal of the connective tissue covering from the corresponding artery, in which are situated the ramifications of the sympathetic containing, as Joris proved, sensory as well as motor fibers. This idea was not new for such an operation had been performed by Jaboulay in 1899 in the treatment of diseases of the sympathetic nerves causing trophic disturbances (mal perforant), and Leriche, himself, had performed sympathectomy with success in a case of Raynaud's disease. In his last report he records thirty-nine cases of sympathectomy.

Technically the operation is very simple. Turbin brings out certain points on which Leriche lays particular stress. The large arterial trunk is isolated for a distance of 8 to 10 cm. and the delicate connective tissue clinging to it then removed. The first step is the usual exposure of an artery in its course.

In the author's cases it was always effected at a site higher than the injury. For the removal of the connective tissue from the arterial trunk Turbin uses instruments of the type employed in operations on the eye (scalpel, pincettes, etc.). In order to determine whether all the connective tissue has been removed, he moistens the artery; if any connective tissue remains, the artery shows the color of flesh, but if the artery is bare, it is light gray.

During the operation a contraction of the arterial wall usually takes place; the caliber of the vessel becomes smaller, the pulse at the distal end becomes weaker, and the parenchymatous hæmorrhage from the tissues is increased. These phenomena may be attributed to a spasm of the vessel wall and compensatory expansion of the capillaries. The sphygmogram made on the operating table shows a considerable decrease in the size of the pulse wave of the diseased extremity. The ascending limb is less steep, the apex rather flat, the elevation of the descending limb becomes indistinct, the angle formed by the two limbs approaches a right angle, and the variations in elasticity are slight. The entire picture suggests the sphygmogram of advanced arteriosclerosis.

Before the patients were subjected to operation they were examined in the neurological department, kept under observation for a considerable length of time, and given physio-therapeutic treatment. In every case the operation of neurolysis was tried first, and sympathectomy was done only when this had failed. Hysteria was excluded in every instance.

In all, eight peripheral sympathectomies were performed during the war, five on the brachial artery, one on the femoral and sciatic arteries, one on the femoral artery, and one on the popliteal. The results in these eight cases are summarized as follows:

Long-continued conservative treatment caused no improvement. Neurolysis was a failure. Following Leriche's sympathectomy there was rapid improvement, the pain and contractions disappeared, the trophic, vasomotor, and secretory disturbances decreased, and the ability to move the extremity returned.

LUTHER (Z).

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Randall, A., Small, J. C., and Belk, W. P.: Granuloma Inguinale. *Surg., Gynec. & Obst.*, 1922, xxiv, 717.

This study is based on sixteen cases of granuloma inguinale observed in the Philadelphia General Hospital. The authors estimate that at least fifteen cases of the condition pass through this institution yearly.

The lesion commonly occurs in the groin. It begins as a small papule which, after rupture, shows a tendency to spread. The fully developed and typical lesion appears as a flesh-red, exuberant overgrowth of soft granulation tissue. It does not resemble an ulcer. Its edges are raised and overhang the skin margins. The exudate is scant, mucoid in character, and of a non-offensive odor. The lesion may extend over the perineal structures and even into the vagina and rectum.

With the exception of slight anemia there is an absence of local and constitutional symptoms. Wassermann tests are negative.

The diagnosis is based on the appearance of the lesion and the finding in smears of the characteristic encapsulated bacillus of Demarek within large mononuclear plasma cells. The intravenous administration of antistomat is followed by marked improvement and serves as a therapeutic test. The lesion is to be distinguished from chancre and the ulcerative lesions of syphilis and tuberculous with which it has been frequently confused.

In only three instances was the characteristic organism obtained in culture. This is a gram negative, non-motile, non-sporulent, encapsulated bacillus. Lesions produced by inoculations into animals were not characteristic and could be produced also by strains of organisms of respiratory origin.

Sections of the lesions when examined microscopically show a superficial cellular area mounted on a base of dense hyaline connective tissue. The cellular area is composed of a small amount of young connective tissue, a small number of polymorphonuclear neutrophils, and many endothelial leucocytes. Round cell infiltration extends for a short distance under the apparently normal skin.

Gummas inguinale had a particularly poor prognosis when treated by salves, escharotics, antiseptics, and the X-rays, but will yield rapidly and remain permanently healed following the intravenous use of tartar emetic. Fifteen of the sixteen patients treated were cured. Two had recurrences which yielded rapidly to re-administration of the drug. The tartar emetic is injected every second day. The initial dose of 5 mg. gm. is quickly increased to the maximum dose of 0.10 gm. The amount of treatment is in direct proportion to the size of the lesion.

The histories of the sixteen cases reviewed are abstracted. The article also contains photographs of the lesions.

V. G. BURNEX, M.D.

Goljanitzki, J. A.: The Pathology and Surgical Treatment of Noma (*Ueb. Frage der Pathologie und die operative Behandlung der Noma*). *Sitzungsber. d. Ver. f. Intern. u. prakt. Med.*, Astrachan, 1921.

As regards localization, there are two distinct varieties of noma: (1) that which develops on the upper lip and causes necrosis of the entire cheek as far as the external acoustic meatus, and (2) that beginning on the chin and proceeding to the lower lip, the angle of the mouth, the lower jaw, and the tongue. In the middle of each of these regions are salivary ducts: on one side Stenson's duct, on the other Wharton's duct and the ducts of the sublingual glands.

Twenty-four experiments were carried out by the author. The fact was established that the saliva of the animal which found its way from the buccal cavity into the tissues of the cheek caused rapid necrosis. This necrosis must be ascribed chiefly to the bacterial flora of the saliva and only partially to the action of its ferments.

In investigations in which an attempt was made to cause noma experimentally the salivary duct was destroyed by the injection of phenol, with care not to injure the skin. The saliva of the same animal was then injected. On the basis of these experiments the author arrives at the following conclusions:

The saturation of the tissues with saliva in the presence of the bacterial flora of the buccal cavity causes progressive necrosis which closely resembles noma in man. Such saturation lowers the resistance of the tissues to infection, and in the presence of the flora of the mouth leads to necrosis with mild inflammation.

After discussing the various methods of treating noma, the author expresses the opinion that attention should be paid to prompt exposure and drainage of the salivary duct leading to the affected area. Complete success in the treatment of noma can be expected only in cases in which the salivary duct has not become perforated and the surrounding tissues have not become saturated by saliva or infected.

ARMUS (Z).

SERA, VACCINES, AND FERMENTS

Friedemann, U.: The Present Status of Serum Therapy (*Der gegenwertige Stand der Serumtherapie*). *Klin. Wochenschr.*, 1922, 1, 1056.

From this comprehensive work we will take only those parts of the subject which are of importance to the surgeon.

Through the prophylactic injection of tetanus antitoxin as close to the wound as possible, almost complete disappearance of traumatic tetanus from the army was brought about during the war. Bullock and Cramer have pointed out that calcium salts in the soil exert a very injurious influence on the tissue in the wound and thus prepare a favorable bed for wound bacteria. They attempted to establish a relationship between the number of cases of tetanus and gas gangrene and the calcium content of the soil, and assumed that the latter was particularly low in the trenches because they were washed out by the rain.

Friedemann judges the curative effect of tetanus serum much more favorably than other authors. He has seen severe cases with a short period of incubation and a rapid course in which recovery was brought about by large doses (500-1000) given simultaneously by the intralumbar, intravenous and intramuscular routes. The difficulty in the use of streptococcus serum lies in the question of polyvalence. The large group of morphologically and culturally indistinguishable streptococci includes a considerable number of serologically differentiated strains, concerning the number and frequency of which we still know comparatively little. It is possible to judge the therapeutic effect of the serum only in cases in which it has been determined whether the serum to be used does in fact possess a protective material against the strain of streptococcus cultured from the lesion.

STAHL (Z).

BLOOD

De Jongh, C. L.: *Blood Transfusion* (Ueber Blut-transfusion). *Nederl. Maandschr. v. Geneesk.*, 1921, 1, 649.

The author has undertaken blood transfusions on a great variety of indications. Blood from the patient and from the giver are always first examined for agglutination; if agglutination does not occur, hemolysis does not take place. For this examination serum and blood corpuscles from both the donor and the recipient are necessary.

The serum is obtained in the usual manner. The blood corpuscles are obtained as follows:

The blood is collected in a glass containing 5 c.cm. of a solution of 1.5 gm. of sodium citrate in 100 gm. of 0.8 per cent sodium chloride solution. Sufficient blood is allowed to run in to give the mixture a bright red color. The blood corpuscles are then separated by centrifugalization and a 5 per cent suspension in normal salt solution is prepared. Hanging drops of this suspension are then examined under slight magnification for agglutination of the erythrocytes. If at the end of a few minutes there is no agglutination, a second suspension should be made.

De Jongh observed in some cases that the blood of close relatives did not belong to the same group; hence blood relationship alone does not necessarily signify suitability of the blood for transfusion. The Wassermann test is always made on the donor. The transfusion is performed as follows:

The brachial vein is ligated and the area disinfected in the usual way. The blood is drawn by a tube of large caliber into a wide sterile vessel containing 12.5 c.cm. of a sterile 2 per cent solution of sodium citrate and is stirred with a glass tube. When 125 c.cm. of blood have run in, 12.5 c.cm. more of sodium citrate are added, and then more blood is run in until 250 c.cm. have been obtained. The blood must come from the vein in a stream; otherwise the tube is changed. The blood is introduced into the patient's vein by means of a cylinder such as was formerly used for the administration of salvarsan. The tube and the lower end of the cylinder are filled with physiological sodium chloride solution and the tube is fastened into a vein preferably under local anesthesia. The citrated blood is then added. About 15 c.cm. are introduced per minute under strict asepsis.

The author discusses his experiences in 20 cases in which transfusions were undertaken because of the following conditions: (1) acute loss of blood; (2) secondary anemia; (3) pernicious anemia; (4) hemorrhagic diathesis; and (5) sepsis. In all of the cases the transfusion was followed by a rise of temperature; as a rule this lasted but a short time, and in some was accompanied by a slight rigor. Most of the patients felt well in spite of the high temperature. The fact that this rise of temperature has not been observed by many other surgeons, de Jongh believes is due to failure to take the tem-

perature immediately after the transfusion and then at hourly intervals. In one case he did not observe a rise of temperature, but in this the hourly testing was not done. In one case hemoglobinuria followed the transfusion in spite of a negative test for hemolysis and agglutination. In a case of pernicious anemia it occurred three times after transfusion from three different donors, for each of whom the laboratory tests were negative.

The author is not optimistic regarding transfusion in acute loss of blood. In secondary anemia, particularly that due to cancer, he has seen good results. In these cases it is useful also as a measure preparatory to operation. In no case of pernicious anemia has de Jongh found it of value. It is his experience that these patients have periods of improvement even without blood transfusion and can be aided best by arsenic and rest in bed. In hemorrhagic diathesis transfusion surpasses all other remedies. Small quantities of blood should be transfused daily. In one of two cases of chronic endocarditis a cure was obtained by transfusion of blood previously immunized against the appropriate strain of streptococci. Therefore, considering the severity of this disease picture, transfusion should always be tried.

In de Jongh's opinion the transfused blood does not act as transplanted tissue as the quantity is too small and the anemia improves very slowly. A stimulation of the organism, particularly of the bone marrow, appears more plausible. How this takes place is not yet known. In Germany an activating of the protoplasm is spoken of, in France, a protein shock. In children, however, the process seems to be different. Gorter and Halbertsma calculate mathematically how much blood is lacking in an anemic child and introduce this amount; immediately after the transfusion there is a rise in the hemoglobin content and of the blood corpuscles which corresponds to their calculations (observed in eight cases). To obtain the same results in an adult, however, it would be necessary to introduce such a large quantity of blood that the heart and vessel walls would be endangered. Therefore in these cases it must be assumed that an activating effect is exerted caused by a considerably less amount of blood, perhaps by less than is usually supposed. The author suggests therefore that the same effect might be obtained also by the introduction of other albuminous substances. TIMM (Z)

BLOOD AND LYMPH VESSELS

Kroll, F.: *Two Rare Localizations of Hæmangiomas* (Zwei seltene Lokalisationen von Hæmangiomen). *Med. Klin.*, 1922, xviii, 564.

The first case was that of a 12-year-old girl with a hæmangioma in the muscle fascia of the right arm. The tumor was removed under local anesthesia. It was found to be in close relation to the fascia but the muscles lying underneath were entirely normal. Operation was followed by uneventful recovery.

The second case was that of a man 37 years old who had a vascular tumor on the glans penis. While showing a horse twenty-five years previously he received an injury of the penis which was supposed to be only a very slight abrasion of the skin. The blood tumor was first noticed during the war. It slowly increased in size and new nodules appeared on the right undersurface of the penis. During the last few years urination was occasionally obstructed for a few seconds, at which times a sensation of narrowing of the urethra was experienced. On November 10, 1921, a slight hemorrhage occurred.

Examination by the author revealed on the right undersurface of the glans penis an irregularly circumscribed, slightly elevated, dark bluish-red nodular tumor measuring 1.5 by 1 cm. and extending up to the urinary meatus. The urethral mucosa, as far as it could be seen with the naked eye, was peeling and blue. The tumor was soft and compressible. A diagnosis of cavernoma of the glans penis with involvement of the urethral walls was made and the growth removed under local anesthesia. It was found to include almost the entire right side of the glans and to extend along the urethra to a depth of about 2 cm. It was closely attached to the urethral mucosa. The operation was followed by uneventful recovery. The extirpated tumor was the size of a cherry and not encapsulated.

Extirpation of hemangiomas is absolutely necessary because of the danger of sudden hemorrhage. If gonorrhea is superimposed, infiltration of the urethral wall, erosion of the tumor, and very severe hemorrhage may result from the additional inflammation. The condition may arise from a congenital anlage.

CASPER (Z).

Yates, J. L.: The Proper Treatment of Chronic Malign Diseases of the Superficial Lymph Glands. *Arch. Surg.*, 1922, 5, 95.

The term "malign" is applied to any granulomatous or neoplastic disease against which the body is unable to muster sufficient spontaneous resistance to induce recovery.

Chronic malign diseases of the lymph glands are of three varieties: (1) granulomata, such for example as tuberculoma; (2) neoplasms, especially carcinomata; and (3) a group of maladies intermediate between granulomata and neoplasms which includes Hodgkin's disease, lymphocytic leukemia, lymphosarcoma, chloroma, and the so-called spindle-cell sarcoma of the lymph glands.

The most dependable evidence of relative malignancy is the type and extent of the periadenitis. This also frequently measures the defensive response.

Persistent abnormalities in the blood pressure response to exercise are significant. A lymphopenia or anemia which does not respond to proper stimulation is evidence of a permanent loss of the power of regeneration in the mother cells. A considerable reduction in the number of platelets, especially when these present are abnormally large, positively contra indicates operation.

If "cure" means elimination of disease so complete as to preclude the possibility of a recurrence, then malign diseases are generally incurable. The most common cause of failure after operative treatment, especially in affections of the cervical glands, is local or regional recurrence which is due to incomplete removal of the initial lesion and inadequate regional excision. Statistics advanced to show the results obtained by various therapeutic methods are unhelpful because they cannot show the most important phase of the problem, namely, the degree of malignancy at the time of treatment.

Next to excision, radiation is at present the means usually relied upon to destroy initial lesions and control malign lymphomata. Too little use is made of the actual cautery. Foci that cannot be excised may be destroyed by heat or by cauterization followed by radiation. Proof is yet lacking that surface radiation can destroy intraglandular malign diseases. Malign processes are modified but not destroyed.

Effective extirpations of malign lymphomata from the neck, axilla, and groin must remove, in addition to the structures involved, all of the gland-bearing and disease-bearing tissues and those in which lie the lymphatic connections to adjacent regions. Moreover, prompt healing and functional rehabilitation must be assured.

If healing is smooth, regional lymph glands and vessels regenerate after extirpation in less than three months, and apparently function normally.

The mortality following complete regional extirpation depends upon the patients' condition.

Skin flaps should be completely reflected as the first step, kept covered with warm moist gauze, and protected from pressure until replaced. Dissections of deep tissues should be concentric. Sharp dissection is best. After dissection is completed, dead spaces are obliterated as far as possible by suture or tissues fixed by suture so that the pressure of bandages will lead to their obliteration. A muscle floor is to be fashioned upon which the skin flaps which to a large extent have become skin grafts may rest and from which they are to obtain their circulation. The importance of constructing a floor of muscle denuded of fascia but assured of adequate circulation cannot be overestimated.

Attempts to disinfect the deep wound with iodine, ether, or the roentgen ray are not only futile but harmful as they provoke greater serous exudation and oedema. Accurate haemostasis is imperative.

The incisions are determined partly by the exposure required but more by the character of the healing apt to follow. The skin flaps must not be dissected too thin.

Large amounts of elastic dressings are placed upon the warm glycerin gauze next to the wound. In neck dissections the head is inclined toward the side operated upon, rotated toward the opposite side, and firmly fixed for four or five days.

Ether anesthesia induced with the Connell apparatus is the most satisfactory for the patient.

The technique of the complete dissection of the cervical, axillary, and inguinal regions is described in detail.

Thirty-five illustrations are given to show the incisions advocated, the anatomy, and the results.

CARL R. STEINKE, M.D.

EXPERIMENTAL SURGERY AND SURGICAL ANATOMY

Saawitsch and Tonkich: The Secretion of the Adrenal (*Ueber die Sekretion des Adrenalins*). *Russk. Physiol. Journ. imeni Ssitschenowa*, 1921, iii, 45.

The authors studied the secretion of adrenalin after stimulation of the splanchnic nerve by making use of the method of crossed circulation. The internal end of the carotid artery of one dog was anastomosed to the peripheral end of the carotid artery of another dog of the same size by means of the tubes, and in order to prevent tension a piece of the external jugular vein was also inserted.

Kymographic registration of the blood pressure of the femoral artery in both dogs following curarization and during artificial respiration showed the two curves to be parallel. The splanchnic nerve on the left side of one of the dogs was then dissected away. The mingling of blood had in itself no influence on the blood pressure but when the splanchnicus of one animal was electrically stimulated, the blood pressure rose, first in that dog and then also in the other; the pulse of the second dog was similar to that which appears after stimulation of the vagus nerve.

Injection of adrenalin into the blood of the first dog brought about the same rise of blood pressure in the second. On the other hand, when the blood pressure was increased in the first dog by stimulation of the sciatic nerve, the blood pressure of the second dog remained unaffected.

PETROW (Z).

Bogoslowskij and Korentschewskij: The Influence of the Internal Secretions of the Testicles and Prostate on Metabolism (*Der Einfluss der inneren Sekretion der Hoden und der Vorsteherdrüse auf den Stoffwechsel*). *Russk. Physiol. Journ. imeni Ssitschenowa*, 1921, iii, 47.

Experiments were performed on fourteen dogs, some of which were normal, others castrated, and others both castrated and thyroidectomized. A testicular emulsion or a prostatic emulsion was injected subcutaneously. The food of the animals was the same before, during, and after the period of injection—horse meat and horse fat. The results with regard to the effect of the testicular emulsion are summarized as follows:

1. The action of the testicular emulsion expressed itself in a constant and noteworthy rise in the protein metabolism. In castrated animals the metabolism of protein was lowered and the effect of the injections particularly evident. When the injections were stopped, the protein metabolism sank again, evidently because of the effort of the organism to rid itself of the excess sex hormones. Often, how-

ever, it remained raised after the injections were stopped. The exchange of gases was, as a rule, somewhat diminished. Diuresis was decreased in the castrated animals, but was increased in those animals subjected to castration and thyroidectomy. The injections were not observed to have any injurious effect.

Following the injections of prostatic emulsion no injurious influence was observed. On the contrary, the animals increased in weight. There was a distinct rise in diuresis, especially in the castrated animals. The protein metabolism rose, as indicated by an increase in the elimination of nitrogen. The influence on the exchange of gases was found to be less distinct.

It is clear, therefore, that there is a synergetic relation between the male sex glands and the prostate. The hormones of the testicles and of the prostate raise the protein metabolism, and the effect is particularly marked when there is simultaneous action of two hormones and when the animals have been castrated.

PETROW (Z).

Saawitsch and Saoshenstswenskij: The Influence of Stimulation of the Vagus on the Secretion of the Intestinal Ferments (*Der Einfluss der Vagusreizung auf die Sekretion der Darmfermente*). *Russk. Physiol. Journ. imeni Ssitschenowa*, 1921, iii, 43.

The experiments were carried out on etherized cats. The spinal cord was severed below the medulla oblongata and the animal kept alive by artificial respiration. The pylorus was ligated and a tube introduced into the lower small intestine. A second ligation was placed between duodenum and jejunum and a second tube inserted into the duodenum. During the experiment the animals were placed in a warm bath containing physiological salt solution. Stimulation of the vagus occurred with rhythmic tetanization at the throat. The amount of kinase in the intestinal juice was determined by the rapidity with which fibrin was digested; the amount of erepsin, by titration of a decinormal alkaline solution of peptone with formol; and the amount of lipase by titration of milk and intestinal juice with decinormal solution of soda.

When the vagus was stimulated, the secretion appeared earlier and was more pronounced than in the control experiments in which there was no stimulation. The ferments collect during the period of latency and in the first portion of the intestinal juice they were present in great abundance. After the stimulation was stopped the ferment curve fell but when the stimulation was renewed the curve rose again if the strength of the current was increased. Atropin did not paralyze the influence of the nerves on the secretion of the intestinal juice, but lowered the quantity of the juice, and particularly the quantity of the ferments. After the lapse of time, renewed stimulation raised the concentration of ferments again and a fresh dose of atropin again diminished it.

PETROW (Z).

Kropfeld, S. M.: *Experimental Contributions to the Question of Bone Transplantation* (*Experimentelle Beiträge zur Frage der Knochen transplantationen*). *Nordt. Maandische & Geneesk.*, 1921, 5, 471.

After reviewing the earlier experiments to determine which of the elements of the bone tissue is responsible for bone regeneration following transplantation, the author cites the work of Axhausen (1909) who endeavored to investigate the entire subject of bone transplantation anew by extensive experiments on 146 animals, including rats, rabbits, and dogs. The bones were transplanted with periosteum and marrow, without periosteum but with marrow, and without either periosteum or marrow. In the last-mentioned experiments the bone without the periosteum was cooked, or macerated sterile bones were used.

These investigations supported the theory of Barth that all transplanted living bone is destroyed. The implanted bone tissue, whether surrounded or not by living periosteum and bone marrow, always becomes necrotic. If periosteum and bone marrow are situated in its vicinity, this dead bone is later replaced by living bone, the replacement occurring partly from the free surface, but mainly from the vascularized canals into which the tissue grows. However, Axhausen could not substantiate the "insidious replacement" of Barth. He found rather that there is first a lacunar breaking down and that this is followed by growth along the walls. The haversian canals become wider and there appear areas of absorption in which the osteoclasts lie. This absorption immediately follows apposition. Bone is absorbed on one side of the vascular canal and new bone is formed on the other. To a great extent the periosteum and marrow remain alive under favorable circumstances and form new bone in the transplant, in the bone as well as in the soft parts. The most favorable conditions are to be found along the free border of the periosteum. Here the soft parts lie directly against the cambium layer; the same applies to transplanted marrow. Direct and extensive apposition with the surroundings is the first requisite for viability. In order to increase the viability of the periosteum, Axhausen recommended incising the periosteum to increase the moisture of the cambium layer.

A great many other observers agreed with Axhausen and others rejected his conclusions. Axhausen is recognized mainly in Germany. In England, the views of Macewen are more popular. According to Macewen's theory the periosteum has nothing to do with the growth of bone as such, being only a protective limiting membrane. The bone tissue can go through all the stages of growth without the influence of the periosteum. Bone grows with the aid of the osteoblasts, which originate from the bone cells of the diaphysis. As long as these osteoblasts are not matured, they may proliferate markedly and form bone. The proliferating power of bone cells is just as great as that of epithelial cells. Usually the osteo-

blast grows in the loose tissue between the bone and periosteum. The function of the periosteum is to inhibit the osteoblasts from penetrating the soft tissues; if they do penetrate as the result of injury of the periosteum exuberant callus results. The longitudinal growth of bone occurs mainly on the side of the epiphysis lying near the diaphysis. Microscopic examinations were not done in most of the work of Macewen. He still agrees with Ollier that a healed bone must always be considered as living. The claims of Macewen have been very much criticized.

At about the same time that Macewen published his theory Murphy reported his findings, agreeing with Macewen on some points but disagreeing with him on others. According to Murphy's theory, the periosteum itself does not form bone, but is important as a limiting membrane. Murphy therefore never removed it from the transplanted bone. He claimed that the transplant itself has no osteogenic power, being only osteoconductive. He emphasized the fact that direct contact of the implant with the living bone is absolutely essential for successful transplantation.

In 1912 Albee examined several specimens from dogs and man showing the results of the implantation of a piece of the tibia into the spinous processes of a few vertebrae which had been done in an operation he recommended for tuberculous spondylitis. On the basis of his investigations Albee believes that the transplant remains alive, even when it has been preserved on ice for some time. This he attributes to good vascularization of the implant through the vessels of the bone to which the transplant is closely applied. Periosteum which is not placed deeply cannot form bone.

Cotton and Loder and Brown (1913) were unable to determine whether free or pedicled transplanted periosteum forms bone or not. They concluded that periosteum is not absolutely necessary but is very important for the growth of bone.

Lewis (1914) agreed on the whole with Macewen.

MacWilliams (1914) also supported the theory of Macewen, basing his opinion on experiments on man and animals. He claimed that bone regeneration cannot occur without periosteum or without marrow, that the transplant remains alive, but that the periosteum seems to have a special function which is somewhat more than that of a limiting membrane. The viability or death of the transplant depends entirely upon the blood supply. MacWilliams had only roentgenographic controls.

Dawis and Hunicut (1915) undertook a large number of experiments on animals to investigate the function of the periosteum. They made no microscopic studies. They found that free or pedicled periosteum forms bone. Autogenous bone, with and without periosteum, may remain alive when transplanted into bone defects.

Gill (1915) also believes that transplanted bone remains alive.

Against these investigators, who support the views of Macewen, there are such opponents as Carrel

(1912), Haas (1914), and particularly Mayer and Wehner. In their transplants a change of bone cells to osteoblasts was nowhere demonstrable. The division of bone cells and the migration of bone cells to the surface of the bone were not seen. Regarding the important function of the periosteum and endosteum, which remain alive, these authors agree with Axhausen. Regeneration of bone deprived of periosteum is explained by the presence of portions of the cambium layer which will be found on microscopic examination to be attached to its inner aspect. In the cases operated upon by Albee, Mayer found a portion of the implant still living sixty days after the operation. The distinct development of the small canals shows that by means of these canals the young, newly formed bone cells penetrate into the bone spaces of the old bone.

Phemister confirms on the whole the investigations of Axhausen, as does also Lewis (1915).

Brooks (1917) stated that he could not ascribe a bone-forming function to the periosteum. Lanz (1917) believes in the viability of the transplant.

The article is concluded with the following summary of the theories reviewed.

1. The original conception of Ollier was that the transplanted piece of bone remains alive, and the periosteum and bone marrow are bone forming tissues.

2. Axhausen believes that the transplanted bone dies and that the surviving periosteum and bone marrow are replaced.

3. Macewen claims that the transplanted bone remains alive and that the bone itself can form bone, whereas the periosteum serves only as a limiting membrane. (Z).

Rasdotskij, J. J.: *Histologic Changes in the Nervous System in Animals Subjected to Thyroidectomy and to Parathyroidectomy* (Histologische Veränderungen im Nervensystem bei thyroidektomierten und parathyroidektomierten Tieren). *Russk. Physiol. Journ. imeni Seitschenowa*, 1921, III, 39.

The author experimented on ten dogs, six cats, and two rabbits. In one series the entire thyroid gland and parathyroid gland were removed, and in the other series only the thyroid gland.

In the first series the changes in the nervous system, like the clinical reaction, were of an acute character. Nissl's "acute disease of the cells" appeared in all parts of the nervous system. In the neurofibrils there was granular disintegration, and in the nerve fibers Waller's degeneration and fragmentation were noted. In the cortex of the brain and the nuclei of the medulla oblongata marked capillary congestion and occasional small extravasations of blood were found. The origin of these changes is probably to be referred to the spasms, dyspnea, and other consequences of the thyroidectomy and parathyroidectomy.

Following simple thyroidectomy the anatomical changes showed a gradual increase. They were most

severe in the cortex of the brain, and less severe in the spinal and sympathetic ganglia, the pons varolii, the medulla oblongata, the cerebellum, and the spinal cord. In the nerves Nissl's chronic disease of the cells led to sclerosis. In severely cachectic animals fine granular lipid deposits were found in most of the nerve cells. Disintegration of the fibrils and Waller's degeneration and fragmentation of nerve fibers were also demonstrable. In the glia reactive changes developed and lipid was deposited, but on the whole the glia reaction was not very pronounced a fact due to the overthrow of the synthetic processes and the changes in the metabolism. PETROW (Z).

Kuprijanoff, P. A.: *The Position of the Transverse Colon* (Über die Lage des Colon transversum), Monograph, Petrograd, 1921.

The position of the large intestine is of great practical importance in surgery. From a review of literature on the subject it appears that the term "transverse colon" is not correct, as the position of this part of the large intestine is extremely variable.

The author undertook to determine the relationship between bodily conformation, sex, age, etc., and the position of the transverse colon.

Kuprijanoff's monograph consists of six chapters. In the first the development of the transverse colon is explained. On the basis of our present knowledge of embryology, it is possible to distinguish two types, the perfect and the imperfect. The imperfect type is accounted for by a lack of plastic material due to insufficient vascularization. When vascularization is sufficient the perfect type results. Kuprijanoff's research was made on 101 cadavers (eight embryos, three newborn infants, and ninety adults). Those cases in which at operation the transverse colon was not found in its usual place were cases of the imperfect type. Still other variants in the course of the transverse colon are brought about by embryological causes. The author presents all the known cases of unusual position of the transverse colon.

In the second chapter Kuprijanoff describes the types of position of the transverse colon. He distinguishes four such types: (1) the horseshoe-shaped colon, with its arch upward; (2) the transversely lying colon; (3) the U- or V-shaped colon with its arch downward; and (4) the obliquely-lying colon.

The first type is characterized by absence of the colonic flexures. The ascending colon passes into the transverse colon and the latter into the descending colon by a single curve. This type of transverse colon is often seen in children. In the second type the two colonic flexures form almost equal angles but the angle on the right is usually somewhat greater than that on the left. In the U- or V-shaped colon there are usually three angles. The right and left colonic flexures form an angle of 45 degrees or less which is open below. The third angle is formed by the transverse colon itself and for this reason the author names it the "transverse flexure."

These types of position of the colon are dependent on the shape of the abdomen. The author distin-

gives four abdominal shapes: (1) an oval abdominal cavity with vertical long axis; (2) an oval abdominal cavity with a horizontal long axis; (3) a pear-shaped abdominal cavity with its apex upward; and (4) a pear-shaped abdominal cavity with its apex downward.

The shape and size of the abdomen can be determined in the living person by measuring the distance between the farthest lateral points on the tenth ribs and between the xiphoid process and the symphysis. Multiplying the dimensions thus obtained by 100 gives the so-called costal index. Multiplying the ratio of the spinoous interval to the distance between the aliphoid process and the symphysis by 100 gives the spinal index which indicates the size of the lower segment of the abdomen. It will be found that as a rule the costal index is 18.0 and the spinal index 73.0. The figures 11.0-62.0 belong to the first type of abdominal shape, 64.0-75.0 to the second, 74.0-74.0 to the third, and 58.0-69.0 to the fourth.

The first type is found usually in the incompletely developed organism, in the newborn and in embryos. The second type is found chiefly in males (75.8 per cent), the third type in females (78.0 per cent), and the fourth in males (70.0 per cent). The shape of the transverse colon stands in a definite relationship to these shapes of the abdominal cavity. The horse-shoe transverse colon corresponds to the first type of abdominal cavity (oval with the long axis vertical); a transverse (horizontally lying) colon is found in the second type (oval with the long axis horizontal); the U- or V-shaped transverse colon is found with the third type (pear-shaped abdomen with its apex upward); and the oblique transverse colon (from below upward and from left to right) is found with the fourth type (pear-shaped abdomen with its apex downward).

The examinations were made with the cadavers in a horizontal position and with the abdominal cavity open. The position of the abdominal cavity was drawn on ground glass made transparent by petroleum. For the most part fresh cadavers were used for the examinations, but the sculpture method with frozen cadavers was also employed. The roentgenographic findings of other authors agree in nearly all particulars with the findings reported by Kuprijanoff.

In the third chapter the author gives a description of the hepatic flexure, its level, ligaments, etc. The hepatic flexure lies as a rule at the level of the tenth rib (22.8 per cent). In 23.4 per cent of cases it is at the level of the eleventh rib, in 14.8 per cent at the level of the eighth rib, in 8.8 per cent at the level of the ninth rib, in 4.1 per cent at the level of the twelfth rib, and in 2.1 per cent at the level of the seventh rib. The author found the right phrenico-colic ligament comparatively frequently (38.3 per cent). The ligamenta sacroformia are regarded by him as supplementary apparatus which function only when the true ligaments of the transverse colon are insufficient.

In the fourth chapter the splenic flexure, and its ligaments are described, and in the fifth chapter the kinkings and reduplications of the transverse colon are discussed. The anatomical findings are of great importance with regard to the pathology and surgery of the intestine. This relationship the author discusses in the sixth chapter.

Intestinal twisting in the region of the hepatic or splenic flexure is dependent upon the following conditions: (1) short ligaments, which fix the intestinal loop high; (2) strands and inflammatory or embryonic adhesions which draw the distal and proximal ends of the loops together; and (3) duplications in the transverse colon.

The operations which have been proposed for the cure of intestinal kinking may be divided into the three following groups:

1. (a) Mobilization of the flexure, i.e., division of the phrenico-colic ligament; (b) division of the strands and adhesions causing the kinking; (c) mobilization of the colonic loop, indicated by a low position of the transverse colon; (d) fixation of the transverse colon.

2. (a) Anastomosis between the colon and ileum; (b) resection of the flexure; (c) resection of the kinked portion of the transverse colon; (3) the formation of an artificial anus.

Division of the phrenico-colic ligament may be employed also to facilitate approach to the adrenal glands. This procedure, proposed by Kuprijanoff, is called by Oppel the key to operation on the adrenal glands. The left phrenico-colic ligament is divided, the stump is pressed forward between the two flaps, and the parietal peritoneum is pushed to one side to expose the upper pole of the kidney. The left adrenal gland lies above or somewhat mesial to the kidney. In the same way the tail of the pancreas can be reached.

On the basis of his research Kuprijanoff comes to the conclusion that a complete circular occlusion is by no means always an essential condition for the development of ileus as the latter can be caused by kinking alone. Colopexy is indicated in the region of the hepatic flexure at the level of the tenth rib (along the axillary line) and in the region of the splenic flexure at the level of the eleventh rib. The middle portion of the transverse colon must usually be fixed at the level of the umbilicus, but in persons in whom the lower thoracic aperture is narrow the fixation should be done one rib lower.

Protocols of the experiments are included in the monograph. In the bibliography one hundred authors are cited.

WAGNER (Z).

LEGAL MEDICINE

Sale of Practice—Issuance of Prescriptions.
Colough v. Heister et al. 150 N. 2d S.W. 2d, p. 326.

The plaintiff a physician, sold his office fixtures, carriage, practice of medicine, and good will in a stated community to another physician, who will be called the defendant, agreed that he would not

directly or indirectly enter into or engage in the practice of medicine in the city where he had been located or the country immediately adjacent thereto, as long as the defendant was engaged in the practice of medicine in the city in question and took as part payment a note on which this suit was brought. In a counterclaim, the defendant set up that the plaintiff had violated the agreement. On this account he asked damages less the amount due on the note. The plaintiff admitted that after the maturity of the note he had practiced in his old location, and he wrote to the defendant: "The practice I have done is practice that refused to employ you."

It is well settled that contracts of this nature are valid. The good will of a business is a species of property, a thing of value which may be bought and sold and which the law will protect, awarding damages for injuries thereto. The trial court, however, confined the defendant to evidence of the plaintiff's practice prior to the maturity of the note and would not allow evidence to be offered as to practice after that date, on the theory that the failure to pay the note when due was a breach of contract on the defendant's part which authorized the plaintiff to disregard the provision obligating him to refrain from practice in that community. That was error. There was no provision in the contract that a failure to pay the note when due would render the terms of the contract void or have any effect thereon. The non-payment of the note when due was merely a default in the payment of that obligation, not a breach of the other contract. Moreover, the failure of the defendant to pay the note may have been due to the plaintiff's prior violation of the contract.

In addition to evidence of professional visits and practice carried on by the plaintiff in or around the city where he was first located the defendant introduced 120 prescriptions issued by the plaintiff to patients residing in the city in question and within eight miles thereof. These prescriptions were filled at a drug store in this city. The issuance of prescriptions for remedies which a physician deems appropriate for certain ailments or diseases is practicing medicine. But the question here was, Where was the practice in issuing such prescriptions carried on? It would seem that if patients went to the plaintiff's office in the other city and consulted him and were there examined, treated, or given prescriptions, such acts on the part of the plaintiff would constitute the practicing of medicine in the other city, even though the patients in question may have resided in or around the city of the physician's first location and took such prescriptions to the latter place to have them filled. But if the prescriptions were issued under such circumstances that either

the giving of the prescriptions or the consultations with or examination of the patients to whom they were given could be said to have been consummated in or around the city of first location, then such practice was not in the other city, but within the territory of the contract.

J. A. CASTAGNINO.

Indictable Prescribing of Narcotics. *United States vs. Bohman (U. S.), 42 Sup. Ct. R., p. 305.*

According to the supreme court of the United States the Harrison Narcotic Law contains an exception to the effect that it shall not apply to the dispensing or distribution of such drugs to a patient by a registered physician in the course of his professional practice only, nor to the sale, dispensing, or distribution of the drugs by a dealer to a consumer under a written prescription by a registered physician. The rule applicable to such statutes is that it is enough to charge facts sufficient to show that the accused is not within the exception.

The district judge who heard this case was of the opinion that prescriptions in the regular course of practice did not include the indiscriminate doling out of narcotics to addicts in such quantity as charged in the indictment, but, out of deference to what he deemed to be the view of a local district judge in another case, announced his willingness to follow such opinion until the question could be passed on by this court, and sustained the demurrer. In this court's opinion, the district judge who heard the case was right in his conclusion and should have overruled the demurrer.

Former decisions of this court have held that the purpose of the exception is to confine the distribution of these drugs to the regular and lawful course of professional practice, and that not everything called a prescription is necessarily such. It may be admitted that to prescribe a single dose, or even a number of doses, may not bring a physician within the penalties of the act, but in this case it was charged that the defendant physician, by means of prescriptions, had enabled one known by him to be an addict to obtain from a pharmacist the enormous number of doses contained in 150 gr. of heroin, 360 gr. of morphin, and 210 gr. of cocaine. Undoubtedly, doses may be varied to suit different cases, as determined by the judgment of a physician, but the quantities named in the indictment were charged to have been intrusted to a person known by the physician to be an addict, without restraint on him in its administration or disposition by anything more than his own weakened and perverted will. Such so-called prescriptions could result only in violation of the act as heretofore interpreted in this court.

J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Geist, S. H.: Uterine Hemorrhage of Endocrinopathic Origin. *Surg., Gynec. & Obst.*, 1921, xxxv, 196.

Uterine hemorrhages have been classified into two large groups: (1) those due to systemic conditions such as diseases of the heart, liver, and kidneys, anemia, purpura, and acute infectious diseases, and (2) those due to local conditions such as inflammatory lesions of the pelvic organs, malpositions and displacements, foreign bodies, and tumors, and a condition in which there is no demonstrable gross lesion.

In cases of tumor bleeding may result from a local erosive condition of the growth as in carcinoma of the cervix or body of the uterus or submucous growths in which blood vessels are opened by pressure, degeneration, or necrosis. On the other hand, bleeding of an intractable nature occurs in cases of another type of tumor without invasion of the uterine cavity or ulceration of its walls. Included in this group are the fibromyomata and ovarian and tubal tumors.

Of 190 women with fibroids, 192 gave a history of menorrhagia or metrorrhagia irrespective of the size and situation of the tumor while fifty-eight had no menstrual irregularities despite the fact that in many cases the growths were grossly identical in size and location. It seems evident therefore that purely mechanical factors are not responsible. In 168 of the 192 cases studied histologically the mucous was markedly hypertrophied. This was the only constant finding. The author believes that the cause of the bleeding is not the size or shape of the growth or mechanical embarrassment to the pelvic circulation but a disturbance of endocrine balance. Since raying of the ovaries causes disappearance of the mucosal hypertrophy and cessation of the hemorrhage it might be concluded that ovarian activity is necessary for the two processes and that hemorrhage due to fibroids may be dependent on an endocrine disturbance. The same conclusions might apply also to hemorrhage associated with tumors of the ovary.

H. W. Fisk, M.D.

Hundley, J. M., and Hundley, J. M., Jr.: Surgical Treatment of Uterine Prolapse. *Ann. Surg.*, 1922, lxxvi, 106.

In the treatment of the severe types of uterine prolapse with eversion of the vaginal walls the authors have found that in their hands the Watkin interposition operation is the best. They suture the posterior surface of the fundus to the tissues near the pubic arch and the bases of the broad ligaments together in front of the cervix. A perimorrhaphy is

done, the utero-sacral ligaments are shortened, and the cul-de-sac of Douglas is obliterated to the corpus by quilting sutures. Women still menstruating are sterilized. There was one failure and one partial failure in thirty cases.

R. E. Christie, M.D.

Geist, S. H.: Uterine Polyps—Histology, Symptomatology, and a Suggestion as to the Etiology. *Am. J. Obst. & Gynec.*, 1922, iv, 39.

The term "uterine polyp" is applied to a variety of lesions. Uterine polyps may be localized mucosal hypertrophies of polypoid structure or definite tumor masses attached to the uterine or cervical wall by long thin or short thick pedicles and covered by mucous membrane. They may project into the cavity of the fundus or cervix, protrude from the external os into the vagina, or present in or project through the vulvar orifice.

They may be classified as adenomatous, fibromatous, fibromyomatous, and angiomatous tumors. These types show many histologic variations. The adenomatous polyps may be sessile or pedunculated.

In the cervix, the adenomatous type is rather common. In fact, the cervical mucosa shows a marked tendency to form polyps especially in the presence of an inflammatory process. Such polyps are almost always pedunculated.

The fibromatous or fibromyomatous polyps are really intramural fibromata or fibromyomata which are gradually extruded into the cavity of the uterus or cervix.

The epithelium covering the polyps and lining the glands shows variations in type. In the fundal type the cells are often high, with a granular cytoplasm and a small oval, or round, basally placed nucleus taking a pale stain; occasionally ciliated cells are found on the surface epithelium. In the glands there may be a heaping of cells of the same general character as the rest of the polyp and without any suggestion of malignancy. There may be also areas of atypical cells consisting of two or three irregular rows. These cells may be of a transitional type, a few that are high cylindrical being on the surface and a more cuboidal type being found deeper. The cell variations are not malignant but may be a point of origin for a malignant change.

The stroma of the polyp, like the epithelial elements, resembles the tissue of origin. There are both lymph and blood vessels in the stroma, but the latter are more numerous.

The question of the etiology of the polyps is an important one. It is true that in some instances inflammatory lesions may give rise to polypoid outgrowths of the mucosa, as for example sinus disease causing the development of a nasal polyp.

In cervical infection of long duration there is occasionally a hypertrophy taking on the magnitude of the typical, so-called mucosal polyp. These inflammatory hypertrophies are circumscribed small masses varying in size from that of a pea to that of a bean. In the small hypertrophies associated with a chronic endocervicitis oedema and marked inflammatory infiltration are present. While areas of inflammatory cells are found in the real polyps they by no means dominate the picture. Polyps are very common in the uterus while true chronic endometritis is a rather rare condition. From these facts it seems rational to conclude that inflammation plays only a minor rôle in the causation of the common mucosal polyps.

There are several factors which indicate that polyps, especially those in the fundus, are merely local exuberant growths of the mucosa, and that the etiological factor is to be found, not in the uterus, but in some other organ, or is a disturbance of a normal physiological function.

It appears that, instead of true tumors, the so-called adenomatous polyps of the fundus are the products of stimulation (endocrine).

Removal of the ovaries by operation or their destruction by the X-ray or radium will cause these mucosal hypertrophies to atrophy and disappear, and will cure the associated bleeding. Therefore the ovary is a factor of importance in the etiology of the hæmorrhage and probably of the hypertrophy. While no histologic lesion in the ovary can be demonstrated at the present time, the disturbance is probably one of the normal physiology. On the other hand, abnormal function of the ovary in itself may not be, and probably is not, the entire cause. Through disturbance of their physiological function the other glands of the known endocrine chain, and even the mucosa of the uterus, may act as important factors in the production of the pathologic lesion in the mucosa and the abnormal bleeding.

E. L. CORNELL, M.D.

Phaneuf, L. E.: Two Cases of Early Carcinoma of the Uterus Treated by Vaginal Panhysterectomy. *Boston M. & S. J.*, 1922, clxxxvii, 115.

As a reminder that the vaginal route may offer the solution of certain problems in gynecological surgery when abdominal section is contra-indicated, two cases in which vaginal panhysterectomy was performed are reported. The first was that of a woman 42 years of age who complained of excessive flowing which began fourteen years previously following eclampsia and a difficult forceps delivery of a dead foetus. The physical examination was negative except for marked secondary anæmia and emaciation. Vaginal examination revealed a moderately enlarged uterus in good position. The adnexa were normal and there were no masses or tender areas. Uterine curettages under ether anæsthesia disclosed marked hypertrophy of the endometrium with a suggestion of change to a malignant adenoma. The

patient preferred to submit to a hysterectomy rather than to await developments. The operation was performed by the vaginal route because of a mild myocarditis and poor general condition. Anæsthesia was induced with gas and ether. The uterus was found devoid of mucosa and free from invasion, and the patient made an uneventful recovery.

The second vaginal panhysterectomy was performed on a 54-year-old woman who had a third-degree prolapse of the uterus and a large ulcerating cervix. In this case also anæsthesia was induced with gas and ether and the vaginal route was chosen because of the patient's poor general condition. Pathologic examination showed the lesion to be an epidermoid carcinoma of the cervix.

H. W. FINK, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Engelmann, F.: An Analogue in the Female to Varicocele in the Male (Ueber ein Analogon zu der maennlichen Varicocele bei der Frau). *Beitr. z. klin. Chir.*, 1922, cxxvi, 218.

The author states that if the venous plexuses in the broad ligaments are examined they will frequently be found more or less markedly distended. In addition to the signs of inflammation there were found in a large number of cases markedly developed varicocele formations. Most of the women examined were multiparæ in the third and fourth decades of life. Prolapsus and retroposition of the uterus are frequently associated conditions. Complaint is made of a dull and a bearing down feeling. These are noted during standing or walking, become less marked when the dorsal position is assumed, and usually become worse during defæcation and sexual intercourse.

In uncomplicated cases examination discloses nothing more than a soft or indefinite resistance. In four cases which were operated on for chronic inflammation of the adnexa, only varicose formations were found. In seven other cases the tube and ovary on one side were normal; therefore the varicose formations were probably the cause of the symptoms. Both ovaries, or the ovary on the diseased side, are frequently found to have undergone cystic degeneration.

The treatment is at first conservative. If this fails, surgery is indicated. As in varicocele in the male, ligation of the vein may be tried. Unilateral or bilateral ablation of diseased adnexa is preferable in any case. The author proposes the term tubo-ovarian or pelvic varicocele of the broad ligament. In uncomplicated cases suspension and ventrofixation are sometimes sufficient. KULENKAMFF (Z).

Meigs, J. V.: Endometrial Hæmatomata of the Ovary. *Boston M. & S. J.*, 1922, clxxxvii, 1.

The author refers to a recent paper on perforating hæmorrhagic cysts of the ovary by Sampson as the foremost contribution to gynecology and gynecological pathology of recent years.

Sampson believes that adenomyomata of the fallopian tube, the round ligament, the posterior wall of the uterus, the posterior surface of the broad ligament, the sigmoid, and the small intestine and appendix are in some instances due to implants from these cysts.

Meigs, wishing to confirm the existence of these interesting hamatomata, searched the records of the Free Hospital for Women, Brookline, Mass., and those of Graves of Boston.

The cysts measured from 1 to 12 cm. in diameter but usually were not larger than 4 cm. Their location was the lateral surface of the free border of the ovary, none being situated on the median wall. Perforation and adhesions about the ovary were found in all cases but one, in which there were adhesions only. The content of the cysts, a dark chocolate colored or tarry fluid, was typical in every case. In most cases the endometrial-like tissue could be recognized easily, though in some it was necessary to make the diagnosis on the appearance of the cyst wall which is characteristic in certain areas of nearly all endometrial hamatomata. There is a layer of cuboidal, columnar, or cylindrical epithelium resting upon a tissue composed of blood vessels and loose connective tissue, with extravasated new and old blood in abundance.

There are various theories regarding the etiology of these cysts, among others:

1. That the cysts may be endometrial from their beginning.

2. That certain parts of the germinal layer of epithelium of the ovary are able to undergo a metaplasia and take on the function of endometrium.

3. That "cell inclusions" in the ovary may be of endometrial origin.

4. That, as Sampson suggested, they are due to the implantation of endometrium reaching the ovary by way of the fallopian tube.

5. That, as Janney suggested, the endometrial-like tissue is present in the embryonic stage.

6. That, as Russell suggested, the germinal epithelium of the uterus, tubes, and ovaries is derived embryologically from the same place and therefore may develop in any one of these organs.

The reason these cysts do not cause more frequent serious damage is that they develop slowly. Usually they do not appear until the subject is over 35 years of age. The cyst contents increase at every menstrual period; therefore if the endometrial-like tissue and cyst contents did not develop slowly they would soon be very large. As the endometrium of the uterus is governed by the ovarian secretion, the endometrial-like tissue of the cysts is governed by it.

The cysts are more common in nulliparous than in parous women because they are governed by the same laws that govern the ovary and uterus. The women who bear children usually marry before the age of 35, the age at which these cysts are usually found. If a cyst has perforated and has become adherent, the probability of pregnancy is slight. The cysts are more common in women who have

borne few children than in those who have borne many.

The author gives the statistics, operative procedures, and pathologic reports of sixteen cases of endometrial hamatoma of the ovary.

C. H. DAVIS, M.D.

Schickelö, G.: Primary Muciparous Glandular Cancer of the Ovary (*Le cancer glandulaire mucipare primitif de l'ovaire*). *Gaz. d'Ann.*, 1922, 7, 446.

A woman of 45 years, a X para, came to the hospital in the sixth month of pregnancy. A diagnosis of hydramnion was made, the abdomen being about 100 cm. in circumference, and the pregnancy was interrupted. The fetus, which weighed 1,525 gm., died a few hours later. After the delivery the abdominal circumference remained 95 cm. and a voluminous pasty tumor could be palpated. Ultimately this was diagnosed from its symptoms as a malignant tumor of the ovary or ovaries. On laparotomy a pedunculated growth was found, the pedicle of which was formed by the left broad ligament and the left ovarian ligament and tube. On removal a second similarly pedunculated tumor was found. This also was removed. Nodules were present in the left parametrium, but the woman's condition did not permit a more radical operation. Later a second operation was performed for the removal of the metastatic nodules but was followed by death in a few weeks. Autopsy was not permitted. The tumor removed from the right side weighed 3,010 gm., and that removed from the left, 3,630 gm.

In the author's opinion these growths were primary in the ovaries. It appears to him very probable, however, that their point of origin was not in the follicular elements of the ovary. The theory current for twenty years that pseudo-mucinous cysts and certain ovarian cancers originate in the graafian follicles has no foundation in fact. No evolution or proliferation of the follicle other than toward maturation has ever been observed, and this theory has never been substantiated by an authentic case. There is no proliferation other than that of the granulous or internal theca, and both of these preserve the unity and integrity of the follicle. The epithelial cells always remain round, oval, or polygonal, never becoming cylindrical and never producing mucous. The author does not know of any formation proceeding from the germinative epithelium which proliferates in a glandular non-cystic mass and produces mucus.

The neoplasms in the case reported did not resemble any known type. All those studied have a definite serous character, the proliferating epithelium being often papillary, infiltrating the connective tissue, and giving a solid aspect to certain zones. In the tumors here reported malignancy was shown by the rapid invasion of the surrounding tissues without change in the character of the cells. The glands and cells remained the same whether they

belonged to the tumor itself or to a metastasis. Cancer grafted on a pseudo-mucinous neoplasm assumes a character foreign to the gland and the cylindrical cells and the tissue invasion in no way resembles the primary elements.

The tumors reported the author believes represent a new kind of muciparous glandular neoplasm due to a minute portion of the endoderm remaining in the ovary which suddenly developed after the beginning of pregnancy.

W. A. BRENNAN

Brodhead, G. L., and Kassebohm, F. A.: Hydatidiform Mole; with a Report of Ten Cases. *Am. J. Obst. & Gynec.*, 1922, iv, 45.

Hydatid degeneration may occur at any age and at any period of pregnancy, but is more frequent in the early months. On account of the toxic symptoms frequently shown the condition is easily mistaken for the toxemia of pregnancy until bleeding occurs and the appearance of vesicles clears up the diagnosis. The uterus may be enlarged out of proportion to the period of gestation but as shown in the series of cases reported this is not the rule (only four showed such enlargement, while in the three the uterus was smaller). Women who have had hydatid mole should be kept under close observation for a period of years on account of the possibility of the development of chorio-epithelioma.

EDWARD L. CORNELL, M.D.

MISCELLANEOUS

Beuttner, O.: Spontaneous Pelvic Peritonization in the Female, Based on 251 Laparotomies and Twelve Autopsies (*Estudios sobre la peritonización espontánea en la pelvis de la mujer, basados en 251 laparotomías y 12 autopsias*). *Rev. argent. de obst. y ginec.*, 1922, vi, 90.

Beuttner has made a special study of spontaneous peritonization of pelvic lesions in the female and in 1916 published an article on the subject. In the following year his assistant, Chatillon, reported the findings in 100 laparotomies and twelve autopsies. In 1920 Yoel of the same clinic published the findings in 110 laparotomies.

This report reviews all of these findings, a total of 251 laparotomies and twelve autopsies. The following structures are considered: rectum, sigmoid loop, cæcum, small intestine, large omentum, vesical peritoneum, and uterine peritoneum.

The following table shows the number of organs involved by spontaneous pelvic peritonization in the cases studied by Chatillon and Yoel:

Number of organs	Chatillon's cases	Yoel's cases
1	21	34
2	30	20
3	26	25
4	11	12
5	7	5
6	5	4
6+		1

The number of times structures covered with serosa were involved was as follows:

Chatillon's cases		Yoel's cases	
Small intestine	51	Douglas serosa	49
Sigmoid loop	49	Sigmoid loop	48
Large omentum	41	Small intestine	27
Bladder	26	Large omentum	26
Parietal pelvic serosa	25	Broad ligament	21
Rectum	19	Parietal pelvic serosa	19
Uterus	15	Rectum	17
Douglas serosa	14	Tubes	16
Cæcum	11	Uterus	14
Broad ligament	11	Bladder	13
Cystic formations, membranous adhesions, appendix, etc.	21	Cæcum	10
		Appendix	6
		Membranous adhesions	2

Eight cases of spontaneous peritonization studied by Beuttner are reported in detail and illustrated.

W. A. BRENNAN.

OBSTETRICS

LABOR AND ITS COMPLICATIONS

King, E. L.: The End-Results of Abdominal Cesarean Section. *J. Am. M. Ass.*, 1922, LXXIX, 112.

Because of the gradual extension of the indications for abdominal cesarean section and the growing popularity of this method of operative delivery the author urges an occasional review of cases so treated and an inquiry into the ultimate results. Under ideal conditions the mortality and morbidity percentages should be very low, but ideal conditions are not encountered in every case. Thus, in 117 abdominal cesarean sections at the Charity Hospital of New Orleans (excluding the Porro cases), there were twelve deaths from peritonitis and two from sepsis, all of these patients had had vaginal examinations or attempts at delivery before the operation. The majority of the seventy-six patients who recovered had fever, the puerperium being absolutely afebrile in only seventeen.

In a table the author shows that in sixteen of the forty-one fatal cases the death was attributed to operative causes, while in twenty-five cases some disease was regarded as responsible. Another table shows that eclampsia was the indication for section in sixty-one cases and that twenty of these patients died. In two cases the cause of death was exhaustion; in two, decompensated heart; and in one, placenta previa and hemorrhage.

In an effort to throw light on the end-results of the operation King has reviewed the records of the 117 cases operated on at the Charity Hospital by twenty-five surgeons and the records of thirty-three private cases treated by five surgeons. The mortality, morbidity, causes of death, results as regards the fetus, end-results in those cases followed up, etc., are shown in a series of ten tables.

The article contains a brief review of the six cases of ruptured cicatrix included in the author's report. In one case of particular interest rupture of the scar was caused by the administration of 1 c.cm. of pituitary extract given. Conservative suture of the uterus was followed by a stormy septic convalescence. Eighteen months later the patient was delivered of another child by cesarean section.

From this study King concludes that we should restrict rather than broaden the indications for cesarean section. He believes that in obstetrical teaching more stress should be laid on the importance of prenatal care, including especially careful pelvimetry and the early detection and proper treatment of toxemia. Craniotomy or embryotomy on the dead baby can be resorted to more frequently; pubiotomy may be employed occasionally, and the Porro operation can be advantageously

extended to infected cases. If the claims made for low cervical operation are substantiated, especially that it is followed less frequently by rupture of the scar, it bids fair to become the operation of choice in the majority of infected cases. C. H. DAVIS, M.D.

De Lee, J. B., and Cornell, E. L.: Low Cervical Cesarean Section (Laparotrachelotomy): Results in 145 Cases. *J. Am. M. Ass.*, 1922, LXXIX, 159.

The authors point out that the majority of cesarean sections are performed by general surgeons who have little knowledge of the mechanism of labor, obstetrical indications, or the safe time for the operation; therefore the mortality is very high. In 1921 in Chicago twenty-one women died following cesarean section.

At the Chicago Lying-in Hospital in the last eight years 123 classical sections were performed with six maternal deaths. During the last few years the authors have performed 145 low cervical cesarean sections with only one maternal death. The technique of the operation is described in detail.

The authors claim the following advantages for the low cervical cesarean section or laparotrachelotomy, as they choose to call it:

1. The cervix stands infection better than the fundus because it is used to it and has developed a local immunity.
2. The lower portion of the abdomen is more resistant to infection: hence, the value of the Fowler position.
3. The cervical wound is at rest and unaffected by after pains; therefore healing is favored.
4. The healing of the cervix is better than that of the fundus because active involution and the fatty degeneration of the uterine wall defeat the healing power of the tissues (Munro Kerr).
5. There is relatively little danger of leakage of the lochia.
6. The incidence of adhesions is reduced almost to zero when the cut is made in the cervix.
7. The possibility of rupture of the scar in subsequent pregnancy and labor is reduced to a minimum. There are only two cases on record of rupture in a later labor and the authors observed a third in which the scar probably would have torn if labor had set in.
8. This operation makes it possible to give the parturient a real, objective test of labor without materially increasing the risk from operation. In German clinics the low cervical operation is performed even when the parturient has fever.
9. Abdominal hernia has not yet occurred in any of the authors' cases, even those in which there was suppurization. Hernia is not rare after the classical operation.

C. H. DAVIS, M.D.

Nubiola, P.: The Present Status of Subcutaneous Pubiotomy (*Pubiotomía subcutánea, el momento actual*). *Arch. de ginec., obst., y pediat.*, 1922, xxxv, 121.

Although pubiotomy has been practiced in Spain for twenty-five years, Nubiola believes it has been neglected because of greater interest in the newer techniques of transperitoneal and extraperitoneal cesarean section and the influence of German surgery. In DeLee's last textbook the statement is made that it has lost favor on account of its maternal and foetal mortality and high morbidity. Doederlein, publishing the statistics of seven German clinics in 1919, gave the mortality at 8 per cent, but Williams' book on obstetrics published the same year gave it as 2 per cent.

In Spain, despite the fact that many of the cases operated upon were desperate cases, the results have been most excellent, while cesarean section has had a mortality of at least 10 per cent. In Leopold's clinic the mortality of cesarean section is given as 3 to 6 per cent.

In Nubiola's cases of pubiotomy there have been no maternal or foetal deaths. The technique he employs is that first introduced by Bonardi, in which the Gigli saw is used. W. A. BRENNAN.

Gorostegui, J.: Subcutaneous Pubiotomy: Its Indications and Contra-Indications (*La pubiotomía subcutánea: indicaciones y contraindicaciones*). *Arch. de ginec., obst., y pediat.*, 1922, xxxv, 103.

For a successful pubiotomy the following facts must be known previously:

1. The degree of pelvic narrowing and the height of the promontory, the thickness of the pubis, and the condition of the sacro-iliac articulations.
2. The volume of the foetus and the dimensions of the pelvic diameters.
3. The proportion between the pelvic and foetal dimensions.
4. The consistency of the foetal head.
5. The prominence of the anterior parietal fold above the upper border of the pubis.

The indications for pubiotomy are either absolute or circumstantial.

Absolute indications are given by a flat pelvis with a conjugate diameter of 7 or even $7\frac{1}{2}$ cm.

when the foetal volume and cephalic diameters do not exceed the average; by a large foetus and a flat pelvis, even though the antero-posterior diameter of the flat pelvis exceeds $7\frac{1}{2}$ cm.; by a very large foetus in a normal pelvis; and by kyphotic pelvis with a bi-ischiatic diameter of 6 or 7 cm.

The circumstantial indications are given by tumors or any other condition obstructing the normal passage of the foetus, and by prolonged labor with threatened infection.

The mortality from pubiotomy in expert hands is very low. Fieux, Rongy, Menge, Williams, and others have reported series of cases in which not a single death occurred.

Pubiotomy is contra-indicated when the conjugate diameter is less than 7 cm.; when the foetus is dead; when the two sacro-iliac articulations are ankylosed; when, with a conjugate diameter greater than $7\frac{1}{2}$ cm., the disproportion due to a gigantic foetus is greatly accentuated; when there is a uterine, para-uterine, or pelvic tumor permitting uterine dilatation only at the expense of too great distention of the lower segment or obstructing the pelvis; in cases of placenta prævia; and when there are marked changes in the soft tissues (scars, vulvo-vaginal stricturing bands, etc.). All such cases should be treated according to the indications by cesarean section, craniotomy, or embryotomy.

W. A. BRENNAN.

NEW-BORN

Capon, N. B.: General Oedema of the Foetus. *J. Obst. & Gynec. Brit. Emp.*, 1922, xxix, 239.

The etiology of this rather rare condition is unknown. In the cases studied there were no constant findings in the histories of the parents and the only constant condition in the mother was some type of intoxication or illness. The evidence points toward an as yet unknown toxic element originating in the foetus primarily or transmitted to it from the mother through the placenta.

Histologic study demonstrates a more or less constant hyperactivity of the hæmatopoietic organs in the foetus. General anasarca, free fluid in body cavities, and oedema and villous hyperplasia of the placenta are other characteristics. The protocols of eight cases are given. R. E. CHRISTIE, M.D.

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Bruckner, A., and Weingaertner, M.: *Rhino-Ophthalmological Experiences with Gunshot Injuries of the Facial Portion of the Skull* (Rhinoophthalmologische Erfahrungen bei Schussverletzungen des Gesichtsschädels). *Zicker, f. Laryngol., Rhinol.*, 1921, 3, 445, 119 and 1922, 5, 8.

Three hundred cases were examined by the authors. The frontal sinus was injured in 142, indirectly in twenty-four, and directly in 112. Of the 112 direct injuries sixteen involved the frontal sinus alone. The fact that among twenty-one cases of wounds of the frontal sinus an injury of the dura and the brain respectively could be demonstrated definitely in eleven cases shows that gunshot wounds of the forehead are attended by great danger.

Ethmoid bone injuries were demonstrable in ninety of the 142 cases. Special attention was paid to injuries of the lamina cribrosa as these are particularly dangerous. Among the 142 cases of frontal sinus injuries and the thirty-three cases of ethmoid bone wounds without involvement of the frontal sinuses, sixteen cases of injury of the lamina cribrosa were found.

There were six injuries of the antrum of Highmore. The prognosis as to life in such cases is more favorable than that of gunshot injuries of the upper accessory sinuses.

Nasal injuries with and without involvement of the accessory sinuses were seen in ninety cases. In twenty-four cases the olfactory fissure or the lamina cribrosa was injured.

The injuries of the orbits are classified as to whether there was injury of the bony wall or the orbital contents and as to the character of the projectile.

With regard to retained projectiles the authors draw the following conclusions:

1. Retained projectiles should be removed at the earliest possible moment, as otherwise a meningitis may develop after a long latent period.

2. When associated injury of the base of the skull is suspected, an exploratory should be done.

In conclusion, the conditions resulting from injury of the accessory sinuses are considered with regard to the cranial contents, exposure of the dura, brain abscess, meningitis, and brain abscess. An important finding was that meningitis was always of nasal origin and among the ten brain abscesses there were some with an extraordinarily long period of latency (fifteen to sixteen months).

A short discussion of the symptoms of brain abscess and the value of the roentgenogram is given. The authors used roentgenstereoscopy in most cases.

In the treatment of gunshot injuries of the skull, the nose, accessory sinuses, and conjunctiva must be considered as sources of infection. In cases of gunshot injury of one eye the possibility of sympathetic involvement of the other eye must be borne in mind. In cases of extensive injuries of the accessory sinuses, a thorough wound revision should be undertaken early. Packing of the nose should be restricted as much as possible because of the danger of infection. When there is associated injury of the cranial contents, the exposure should be adequate and the wound relationships should be simplified. In early cases of injury of the lamina cribrosa operative interference is indicated, but in the older cases the lamina should be spared as much as possible. Brain abscesses must be widely opened.

FRIEDMANN (Z).

Gibby, H. J.: *Acute Ethmoiditis with Orbital Abscess, with Case Report*. *Boston M. & S. J.*, 1922, lxxxvii, 19.

Acute empyema of the ethmoid labyrinth alone is a rare condition. In the case reported there were three points of interest: (1) the obscure etiology of the condition, (2) its short duration, and (3) the slight disintegration of bone as compared with the severity of the symptoms.

The route of extension from the involved ethmoid labyrinth is either direct through a necrotic area of bone or by metastasis through the ethmoid veins. A chronic sinusitis is the basis upon which an acute process develops, but in the author's case there was no chronic disease and no history of any acute systemic infection.

The patient went to bed with a mild coryza and awoke in the morning with all of the classical symptoms of abscess of the orbit. There was very slight disintegration of bone and no caries of the frontal bone. The operation decided upon was the external operation. A curved incision was made through the eyebrow and continued down the nose, internal to the lacrymal sac. The anterior ethmoidals were entered with a gouge. The cells were filled with pus but were not necrotic. When a part of the orbital plate was removed no abscess was found.

The wound healed in six weeks and there has been no recurrence of symptoms except a mild coryza a year and three months after the operation.

FRANK J. NOVAR, JR., M.D.

Studer, W.: *Fibromata of the Nasopharynx* (Ueber die Nasopharyngeal-fibrome). *Schweiz. med. Wochenschr.*, 1922, lii, 541.

On the basis of twelve personal cases Studer discusses the disease picture and the treatment of fibromata of the nasopharynx. These tumors, which

are histologically benign, are clinically malignant. Microscopically they consist of highly vascular connective tissue. They occur only in males, up to about the twenty-fifth year.

Among the author's twelve cases, the tumor was found on the left side in eleven. In size they vary from that of a hazelnut to that of a man's fist or even larger. As they extend, they send outgrowths into the nose and the accessory nasal sinuses, and may even invade the base of the skull. They originate in the margins of the posterior nares, the inferior wall of the sphenoidal sinuses and the nasopharyngeal roof. In all the author's cases the development of the tumors was intrapharyngeal; extrapharyngeal development is rare.

The chief symptoms are difficulty in breathing through the nose and spontaneous hæmorrhages. Operative removal can be carried out by way of the nose or the mouth, by the maxillary route (Denker), or by resection of the ethmoid bone with retention of the inferior turbinate bone (Killian). The last two procedures allow a good view of the field and therefore facilitate control of the hæmorrhage. As a rule the hæmorrhage is severe and in some cases may be fatal. In the author's cases posterior tamponade was necessary almost without exception. In spite of the fact that the tampon was left in place for only twenty-four hours it caused otitis media in four cases. A considerable decrease in the hæmorrhage can be obtained also by prophylactic ligation of the external carotid artery.

In the author's cases there was one death from air embolism, that of a patient with status thymolymphaticus. In every case the condition recurred and in some of them there were several recurrences.

Recently radium treatment of the tumors and their recurrences has given very good results. Studer therefore believes it should be given a trial before operation is advised. With regard to recurrence it should be remembered that after the twenty-fifth year, that is, after the skull has ceased to grow, fibromata of the nasopharynx sometimes undergo spontaneous retrogression. KOENIG (Z).

THROAT

Goldthwaite, R. H.: Laryngectomy for Cancer of the Larynx with a Modified Technique and Attempted Formation of a Skin-Graft Tube in Place of the Larynx. *Laryngoscope*, 1922, xxxii, 446.

After removing the larynx, Goldthwaite inserted into its place a large rubber tube of double thickness and about 4 in. long which was coated with Thiersch skin grafts. The upper end of this tube he attached to the cut ends of the pharyngeal opening with four catgut stitches, applying the skin graft to the edge of the mucous membrane. He

then brought the other end of the tube with its graft through a counter-opening made in the platysma and skin over the clavicle about 2 in. to the right of the tracheal opening and fastened it in position by transfixing it with a large safety pin. Four days later he replaced this tube with a smaller tube which was removed and replaced daily.

One month after the operation the skin graft tube was connected to the trachea. The lower portion of the tube was rolled laterally toward the median line after it was dissected free, and the upper end of the trachea was cleared by dissection. The two tubes were then drawn together with chromic gut, a space being left in front for the tracheotomy tube.

A rubber tube with a gutter cut half way up in its anterior side was then slid up into the skin graft tube and down into the trachea, the tracheotomy tube introduced into the gutter, and a suture tied around them both to hold them firm.

When the rubber tube is removed the patient can send a column of air up through the graft tube and talk in a hoarse, hollow tone which is intelligible across the room. After removal of the rubber tube one month later the skin tube became rapidly smaller from the progressive closing in of the scar tissue of the neck until finally it was completely obliterated.

O. M. ROIT, M.D.

MOUTH

Veau, V., and Ruppe, C.: The Technique of Urano-Staphylorrhaphy (Technique de l'urano-staphylorrhaphie). *J. de chir.*, 1922, xx, 113.

The classical method of urano-staphylorrhaphy (the Baizeau-Langenbeck-Trélat method) does not always give satisfactory results. An operation for the correction of a palatal cleft should always assure complete suture of the cleft without even temporary disunion, and should give a useful velum. A useful velum is always dependent upon proper suturing, but complete suturing does not always give a mobile velum.

The authors believe that the classical operation should be supplemented by suturing of the nasal mucosa and suture of the musculature with bronze wire. Their experience is based on thirty-five cases. They describe all of the steps of urano-staphylorrhaphy for both unilateral and bilateral palatal clefts in great detail and with illustrations. They discuss also the advantages and disadvantages of muscle and nasal suturing. Muscle suture is always applicable, and disunion of the velum is almost impossible. The preserved muscles assure the mobility of the velum, a condition probably essential for good function. Suturing of the nasal mucosa in two planes is not always possible, but when it can be done it favors rapid cicatrization of the velum.

W. A. BRENNAN

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

- Piercing a wound for skin-grafting. A. R. KILGORE. *Surg. Clin. N. Am.*, 1922, 17, 311.
Plastic operations for defects due to poma. J. S. HENSLY. *South. M. J.*, 1922, 35, 337.
Plastic repair of the face and hand. J. J. M. SHAW. *Brit. J. Surg.*, 1922, 9, 47.
The treatment of congenital dislocation of the hip as practiced by Professor Denmore at Bordeaux, France. Z. B. ANAND. *J. Bone & Joint Surg.*, 1922, 22, 523. [329]

Aseptic and Antiseptic Surgery

- The practical results of wound antiseptics. W. VON CARL. *Klin. Wchnschr.*, 1922, 1, 288.
Common salt in the treatment of wounds. H. ROGGE. *Deutsche med. Wchnschr.*, 1922, 48, 1527.
Some effects of solutions on open wounds and their practical application. W. R. GRIGGS. *Cincinnati J. M.*, 1922, 10, 202.

Anæsthesia

- Prolonged nitrous oxide-oxygen anæsthesia: technique of administration and case report. E. W. SMITH. *Dental Cosmos*, 1922, 115, 102.
The anæsthetic properties of pure ether. R. L. STABLE and W. BOURNE. *J. Am. M. Ass.*, 1922, 12, 375.

- Chloroform anæsthesia. P. F. HOLM. *Minnesota Med.*, 1922, 9, 419.
Local anæsthesia and general narcosis. K. URBAN. *Wien. med. Wchnschr.*, 1922, 133, 436, 486.
Local anæsthetic as a supplement to general narcosis. M. N. HANLEY. *Cincinnati J. M.*, 1922, 10, 195.
The probable cause of the immediate complications of spinal anæsthesia and how they may be avoided. I. DI PACE. *Policlin.*, Rome, 1922, 29, 322, 323, 324, 325.
The question of sacral anæsthesia. A. BARREY. *Deutsche Ztschr. f. Chir.*, 1922, 49, 341.
Splanchnic anæsthesia. A. GUTIÉRREZ. *Semana méd.*, 1922, 22, 1.

Surgical Instruments and Apparatus

- A new apparatus for the treatment of congenital luxation of the hip. A. TRÉVES. *Rev. d'orthop.*, 1922, 12, 173. [330]
A self-retaining, easily removable drainage tube. M. BALLIN. *Surg., Gynec. & Obst.*, 1922, 33, 102.
A new leg-holder for gynecological and obstetrical use. W. E. CALDWELL. *Am. J. Obst. & Gynec.*, 1922, 19, 76.
A new trochoscope. LORENZ. *Fortschr. a. d. Geb. d. Röntgenstrahlen*, 1922, 22, 216.
The "Neuland handle" for the wearers of prostheses. K. STROMMEYER. *Muenchen. med. Wchnschr.*, 1922, 12, 506.

SURGERY OF THE HEAD AND NECK

Head

- The diagnosis and treatment of traumatic injuries of the brain. T. J. BOURCHERS. *Internat. J. Surg.*, 1922, 19, 344.
Nine cases of early traumatic epilepsy due to cranial war wounds. P. L. DELLA TORRE. *Arch. Ital. di chir.*, 1922, 5, 349. [330]
Remote effects of gunshot wounds of the head. L. B. RANCIEN. *Brit. J. Surg.*, 1922, 9, 64. [330]
Knife blade in the brain. T. C. DAVISON. *J. Med. Ass. Georgia*, 1922, 21, 297.
Hydatid cysts of the brain. I. MONCINO. *Rev. méd. d. Uruguay*, 1922, 10, 389.
Aneurysm subaracnoideum and tubercle sclerosis of the brain. G. M. OLSON. *Arch. Dermat. & Syph.*, 1922, 22, 11.
The value of ventriculograms in the localization of intracranial lesions: three cases of obstructive hydrocephalus and one of brain tumor. E. B. THOMSON. *Arch. Surg.*, 1922, 9, 144.
Venous angioma of the cerebral cortex. C. W. DROUGHT and C. A. BALLANTYNE. *Lancet*, 1922, 10, 173.

- Clinical symptoms of cerebellar disease and their interpretation. G. HOLMES. *Lancet*, 1922, 10, 59. [331]
Free fascial transplants in duraplasties. A. E. HALSTED. *Surg. Clin. N. Am.*, 1922, 17, 623.
Brain surgery. W. MACEWEN. *Lancet*, 1922, 10, 211. [332]
A case of sinus thrombosis with exploration of the jugular bulb. J. L. MAYRAUM. *Laryngoscope*, 1922, 32, 326.
Reconstruction surgery of the face. V. P. BLAIR. *Surg., Gynec. & Obst.*, 1922, 33, 704. [333]
Bone surgery of the nose. W. W. CARTER. *Surg., Gynec. & Obst.*, 1922, 33, 800. [334]
Ankylosis of the jaws, pathogenesis and treatment. L. IMBERT and J. COTTALEDA. *Acta chirurg. Scand.*, 1922, 11, 515.
Traumatic fracture of the mandible. J. H. WOOLSEY. *Surg. Clin. N. Am.*, 1922, 17, 313.
Observations on fractures of the mandible. R. H. IVY. *J. Am. M. Ass.*, 1922, 12, 295.
The treatment of nonunion of fractures of the mandible by free autogenous bone-grafts. F. RISTON. *J. Am. M. Ass.*, 1922, 12, 292.

Neck

Tumors of the carotid gland. J. L. LJALIN. *Wrat. Westrik Wslagodskowo Gubslrawa i Rishskowo Wojenowow Gospitalja*, 1921, 26. [334]

Thymus apoplexy; an unusual manifestation of hemorrhagic disease of the newly born. R. N. WAHL and D. WALTHALL. *Am. J. Dis. Child.*, 1922, xxiv, 27.

On the function of the thyroid gland with special reference to the effect of variations of diet upon it. K. TSUJI. *Acta scholae med. univ. imp., Kioto*, 1922, iv, 471.

A case of strumitis post typhosa. W. STEIGER. *Wien. med. Wchnschr.*, 1922, lxxviii, 601.

Thyroid therapy. R. G. ALLISON. *Minnesota Med.*, 1922, v, 404.

Exophthalmic goiter and the hyperthyrotoxic adenoma as two independent diseases. M. E. BIRCHER. *Schweiz. med. Wchnschr.*, 1922, lii, 347.

A case of exophthalmic goiter. E. B. SMITH. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Dis. Child., 30.

Intrathoracic goiter. W. I. TERRY. *Surg. Clin. N. Am.*, 1922, ii, 489.

The operative treatment of goiter. L. FREEMAN. *Colorado Med.*, 1922, xix, 144.

Operation for goiter. J. LÉVAL. *Orvosi hetil.*, 1922, lxxvi, 159.

Surgical treatment of goiter. A. SCHWYZER. *Minnesota Med.*, 1922, v, 397.

Postoperative tetany following operations for goiter. H. KNAUS. *Beitr. z. klin. Chir.*, 1922, cxxv, 669.

Studies on the parathyroids; two cases of combined enlargement of the thymus gland and of the lower parathyroid glands. H. BERGSTRAND. *Endocrinology*, 1922, vi, 477.

Retropharyngeal and posterior mediastinal abscesses. A. B. KANAVAL. *Surg. Clin. N. Am.*, 1922, ii, 603. [335]

SURGERY OF THE CHEST

Chest Wall and Breast

A new physical sign of fluid effusions in the pleura. J. CHALLER. *Presse méd., Par.*, 1922, xxx, 723.

The treatment of tuberculous pleural exudates. L. SPENGLER. *Beitr. z. klin. d. Tuberk.*, 1922, l, 345.

The end-results of a pleuroplasty of the omentum. P. HALLOPEAU. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 959.

The removal of intrathoracic tumors by the trans-sternal route. T. P. DUNHILL. *Brit. J. Surg.*, 1922, x, 4. [335]

The surgical routes through the lower border of the thorax to the organs in the subdiaphragmatic space. A. W. MEININOFF. *Novy Chir. Arch.*, 1921, i, 28. [336]

Graded thoracoplasty for unilateral bronchiectasis. C. A. HEDBLUM. *Wisconsin M. J.*, 1922, xxi, 48.

A contribution to the opening of cavities. THEYS. *Beitr. z. Klin. d. Tuberk.*, 1922, l, 388.

A rare case of multiple lung-thorax fistulae. A. GEHECKE. *Beitr. z. Klin. d. Tuberk.*, 1922, l, 384.

Modern aspects of acute empyema. W. WHITTEMORE. *Boston M. & S. J.*, 1922, clxxvii, 16.

The treatment of empyema. A. C. BAKER. *Minnesota Med.*, 1922, v, 399.

The question of primary wound closure, especially in the operative treatment of pleural empyema. A. W. FISCHER. *Klin. Wchnschr.*, 1922, i, 778.

Residual lactation acini in the female breast: their relation to chronic cystic mastitis and malignant disease. J. MCFARLAND. *Arch. Surg.*, 1922, v, 1. [337]

Trachea and Lungs

Penetrating wounds of the chest. C. C. DEL MARCELLE. *Transactions Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association*, 1920, 117.

The diagnosis of foreign bodies in the bronchi. T. McCRAE. *J. Iowa State M. Soc.*, 1922, xii, 248.

A foreign body in the left main bronchus in a boy 15 months old. H. STÖESSER. *Schweiz. med. Wchnschr.*, 1922, lii, 386.

The value of artificial aids to respiration in "acute operative collapse of the lungs" (surgical pneumothorax) occurring in the course of intrathoracic operations: an historical review and a discussion. R. MATAS. *Arch. Surg.*, 1922, v, 110.

The negative chamber in open pneumothorax: a personal experience. W. MEYER. *Arch. Surg.*, 1922, v, 134.

Abscess of the lung following subcutaneous injury of the thorax. H. HOFFMANN. *Wien. klin. Wchnschr.*, 1922, xxxv, 129.

Primary pulmonary carcinoma with special consideration of shrinking processes. F. CLAUS. *Beitr. z. Klin. d. Tuberk.*, 1922, l, 549.

Treatment of pulmonary gangrene. S. MAZZA. *Riforma med.*, 1922, xxxviii, 676.

A contribution to the surgical treatment of extensive unilateral pulmonary gangrene. O. ZIEGLER. *Beitr. z. Klin. d. Tuberk.*, 1922, l, 395.

Postoperative Lung Complications. I. C. HERB. *J. Am. M. Ass.*, 1922, lxxix, 339. [339]

Heart and Vascular System

The extraction of a bullet from the pericardium: with case report. G. P. GRIGSBY. *Internat. J. Surg.*, 1922, xxxv, 235. [339]

Contributions to the surgery of the heart and pericardium; suppurative pericarditis and the results of its surgical treatment. H. KLOSE and H. STRAUSS. *Arch. f. klin. Chir.*, 1922, cxix, 497. [339]

The true synchia and the plastic for the pericardium. H. KLOSE. *Arch. f. klin. Chir.*, 1922, cxix, 455. [340]

Pharynx and Oesophagus

Pharyngeal diverticulum and its surgical treatment: with a record of two cases. D. F. D. WILKIE and J. N. J. HARTLEY. *Brit. J. Surg.*, 1922, x, 81. [341]

Pitfalls in the diagnosis of retropharyngeal abscess. J. W. MILLER. *Med. Times*, 1922, l, 185.

Twelve years' experience of foreign bodies lodged in the oesophagus and removed with the aid of the oesophagoscope. J. ERDELYI. *Gyógyászat*, 1922, 113, 130, 143.

The diagnosis and treatment of Zenker's oesophageal or hypopharyngeal diverticulum. T. HUG. *Schweiz. med. Wchnschr.*, 1922, lii, 505.

Diverticula of the oesophagus. C. G. LUCAS. *South. M. J.*, 1922, xv, 542.

Surgery of the oesophagus. KUENMELL. *Zentralbl. f. Chir.*, 1922, xlix, 595.

A contribution to antethoracic oesophagoplasty. H. VON ENGELBRECHT. *Beitr. z. klin. Chir.*, 1922, cxlvi, 278.

Intrathoracic oesophagoplastics. H. KUENMELL, JR. *Beitr. z. klin. Chir.*, 1922, cxlvi, 264.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

Marked peritonitis. A. CASARI. *Rev. med. d. Uruguay*, 1922, xiv, 473.

Acute nonsuppurative peritonitis, also a contribution to the knowledge of pseudo-appendicitis. F. MEYERSON. *Acta Chirurg. Scand.*, 1922, iv, 138.

Edematous treatment and prophylaxis of peritonitis. W. SCHWARTZ. *München. med. Wochenschr.*, 1922, lxix, 308. [341]

Diaphragmatic hernia as a late sequel of war wounds of the chest. H. E. WAAMAN. *J. Am. M. Ass.*, 1922, lxix, 155.

Strangulated diaphragmatic hernia. C. POILA. *Rev. med. d. Uruguay*, 1922, xiv, 549.

A better plan of approach for femoral hernia. A. R. KILGORE. *Surg. Clin. N. Am.*, 1922, 6, 323.

A simplified laparal operative procedure for crural hernia. A. LEE. *Brit. & Clin. Chir.*, 1922, cxlix, 232.

A case of double inguinal hernia in which both sacs were removed through a single transverse suprapubic incision. P. TANNER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Dis. Child., 29.

The utilization of the pectineus fascia in certain forms of inguinal hernia. W. D. WISE. *Surg., Gynec. & Obst.*, 1922, lxxiv, 100.

Gastro-Intestinal Tract

Hemangiomas of the gastro-intestinal tract. E. S. JUDS and F. W. RANKIN. *Ann. Surg.*, 1922, lxxvi, 28. [342]

The treatment of spasm of the cardia and of stenosis of the cardia: mesentero-gastrostomostomy. H. FINSTERLIN. *Wien. klin. Wochenschr.*, 1922, lxxv, 471. [342]

Congenital pyloric stenosis. A. WEEKS. *Surg. Clin. N. Am.*, 1922, 6, 347.

Pyloric stenosis arising acutely after benzol poisoning. W. HARRIS. *Deutsche med. Wochenschr.*, 1922, xlviii, 627.

A review of twenty-three cases of pyloric stenosis. J. A. HENCK. *Nebraska State M. J.*, 1922, vii, 227.

Acute phlegmonous gastritis. C. J. MACACLEY. *Brit. J. Surg.*, 1922, x, 28.

Two cases of gastritis chronica gravis (gastritis ulcerosa), verified at operation. A. BERNHARDT. *Ugesk. f. Læger*, 1922, lxxviii, 375.

Gastric and duodenal ulcers, with a report of two cases. P. M. MURPHY. *J. Nat. M. Ass.*, 1922, xiv, 343.

Acute perforations of the stomach and duodenum. A. O. WILSON. *Ann. Surg.*, 1922, lxxvi, 38.

Spontaneous pneumoperitoneum with perforation of a gastric ulcer on the greater curvature. H. A. DAHM. *Med. Klin.*, 1922, xlviii, 363.

The surgical treatment of perforated ulcers of the stomach and duodenum. G. HEDMANN and S. S. NEWMAN. *Surg., Gynec. & Obst.*, 1922, lxxiv, 11.

The surgical treatment of perforated gastric and duodenal ulcers. J. B. CLAYTON. *Am. J. Surg.*, 1922, lxxvi, 191. [342]

Marginal ulcer after a modified Pylor operation. J. P. HENNEY and L. G. CHIL. *Surg., Gynec. & Obst.*, 1922, lxxiv, 19.

Gastro-duodenal surgery for ulcer. H. G. JACOB. *Ann. Fac. de med. de Montevideo*, 1922, vii, 26.

The treatment of gastric and duodenal ulcer, a critical discussion of gastric and intestinal ulcer from the internist's point of view. CRAMER. *München. med. Wochenschr.*, 1922, lxix, 413.

Gastro-duodenal surgery for ulcer. H. G. JACOB. *Ann. Fac. de med. de Montevideo*, 1922, vii, 47.

Progress in the handling of chronic peptic ulcer. W. J. MCVIS. *J. Am. M. Ass.*, 1922, lxix, 19. [343]

The surgical treatment of chronic ulcer of the body of the stomach. W. BILLINGTON. *Brit. M. J.*, 1922, ii, 34.

The relative value of medical and surgical treatment of gastric and duodenal ulcer. R. W. SIPPY. *J. Am. M. Ass.*, 1922, lxix, 26. [343]

The relative roles of medical and surgical treatment in gastric and duodenal ulcer. T. R. BROWN. *J. Am. M. Ass.*, 1922, lxix, 29. [345]

The relative value of surgical and medical treatment of gastric and duodenal ulcer. A. D. BEVAN. *J. Am. M. Ass.*, 1922, lxix, 22. [346]

Gastrojejunal ulcer. J. J. GILBRIDE. *Pennsylvania M. J.*, 1922, xxv, 684.

Excision of the gastric route. M. KIRSCHNER. *Zentralbl. f. Chir.*, 1922, xlix, 428.

Diagnosis of non-carcinomatous tumors of the stomach. C. DEWECKER. *Arch. f. klin. Chir.*, 1922, cxxii, 694.

Carcinoma of the stomach: resection by the second Billroth method. A. D. BEVAN. *Surg. Clin. N. Am.*, 1922, ii, 317.

Cancer of the stomach, with report of end-results in sixty-five cases. P. E. TRUESDALE. *Rhode Island M. J.*, 1922, v, 269.

Treatment after operation upon the stomach and intestines when unaccompanied by serious complications. L. J. HAMMOND. *Pennsylvania M. J.*, 1922, xxv, 596.

Modification of the Kader operation. T. A. SHALLOW. *Ann. Surg.*, 1922, lxxvi, 31.

Subcutaneous rupture of the intestine, with a report of twelve cases. E. P. QVALIN. *Transactions Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association*, 1922, 19.

The classics of rare cases of ileus. H. VON ORTENBERG. *Med. Klin.*, 1922, xviii, 178.

A contribution to the diagnosis of ileus. R. HOFFER. *Zentralbl. f. Chir.*, 1922, xlix, 753.

Intestinal occlusion with multiple sites and pseudo-strangulation of hernia: a contribution to the rarer forms of ileus. *Deutsche Ztschr. f. Chir.*, 1922, clxxx, 539.

The cause and relief of acute intestinal obstruction. C. H. MAYO. *J. Am. M. Ass.*, 1922, lxix, 194. [347]

Stricture of the small intestine (intestinal obstruction—Meckel's diverticulum). C. BECK. *Surg. Clin. N. Am.*, 1922, 6, 753.

Intestinal drainage in intussusception. J. BUIS. *Nebraska State M. J.*, 1922, vii, 242.

Chronic intestinal stasis. B. V. NARASIMHAYYA. *Madras M. J.*, 1922, v, 1.

Meckel's diverticulum. A. WEEKS. *Surg. Clin. N. Am.*, 1922, ii, 443.

Duodenal diverticula. W. A. DOWNES. *Ann. Surg.*, 1922, lxxvi, 43.

Duodenal stenosis following old tuberculous peritonitis. F. HOCHREITER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, lxxii, 176.

Retro-peritoneal rupture of the duodenum. W. H. HARRIS. *Canadian Pract.*, 1922, xlvii, 294.

Interpretation of a duodeno-pancreatic anomaly. A. GOTTSCHEW. *Semana med.*, 1922, xlix, 409. [348]

Contributions to the clinical study and the operative treatment of peptic jejunal ulcer following gastro-enterostomy. H. BRUYET. *Beitr. z. klin. Chir.*, 1922, cxxvi, 41.

Jejunal ulcer without previous gastro-enterostomy. E. P. RICHARDSON. *Surg., Gynec. & Obst.*, 1922, xxxv, 1.

The question of operation for postoperative ulcer of the jejunum. H. ALAPY. *Gyógyászat*, 1922, 97.

Trophoneurotic gangrenous postoperative disease of the ileum and colon. E. HESSE. *Westnik Chirurģii i pogramitschnykh oblastei*, 1922, I, 58. [348]

Ileostomy following resection of the colon. E. S. JUDD and F. W. RANKIN. *Surg., Gynec. & Obst.*, 1922, xxxv, 50. [349]

A continent iliac anus. P. MOURE and C. LENORMANT. *Bull. et mēm. Soc. de chir. de Par.*, 1922, xlviii, 951.

Two cases of ileosigmoidostomy. C. B. DAVIS. *Surg. Clin. N. Am.*, 1922, II, 879.

Partial enterocoele. L. F. WATSON. *Surg. Clin. N. Am.*, 1922, II, 761.

Concerning pneumatosis cystoides intestini hominis. R. WANACH. *Arch. f. klin. Chir.*, 1922, cxix, 309.

Megacolon. W. H. FISHER. *Ohio State M. J.*, 1922, xviii, 287.

Enteroliths with a case report. J. F. COWAN. *Surg. Clin. N. Am.*, 1922, II, 401.

The surgical treatment of constipation. G. H. SOZAYA. *Rev. de med. y cirug.*, 1922, v, 167.

Surgery in the perforation of typhoid ulcer. F. C. SCHULTZ. *Minnesota Med.*, 1922, v, 414.

False appendicitis. VONCKEN and REYNERS. *Bruxelles med.*, 1922, II, 323.

Pseudo-appendicitis, produced by ileal spasms. K. VOGELER. *Zentralbl. f. Chir.*, 1922, xlix, 639.

A case of appendicitis. R. M. DEL CAMPO. *Rev. méd. d. Uruguay*, 1922, xiv, 482.

Appendicitis due to the presence of foreign bodies in the lumen of the appendix. J. T. MURPHY. *Am. J. Roentgenol.*, 1922, II, 3, 437.

Appendicitis in a hernial sac. E. OTTO. *Deutsche Ztschr. f. Chir.*, 1922, clxx, 53.

A perforated appendix removed at sea under exceptional conditions. H. E. R. STEPHENS. *Lancet*, 1922, cciii, 226.

An omental cap over an acute appendix. R. L. FISHER. *Illinois M. J.*, 1922, xlii, 25.

The chronic appendix and recurrent abdominal pain. W. H. BATTLE. *Lancet*, 1922, cciii, 165.

A case of chronic invagination complicated by suppurative appendicitis. E. FREMMER. *Wien. klin. Wchnschr.*, 1922, xxxv, 105.

Results of the surgical treatment of appendicitis, from a study of the last 1000 cases from the surgical clinic at Leiden. W. T. SUERMONDT. *Deutsche Ztschr. f. Chir.*, 1922, clxx, 289.

Experiences and results in 9000 appendectomies. MARSH. *Beitr. z. klin. Chir.*, 1922, cxxvi, 67.

Secondary hemorrhages following appendectomy. H. MEYER. *Beitr. z. klin. Chir.*, 1922, cxxvi, 80.

Megasigmoid, megarectum, fecal bolus. F. G. CORBIN. *Surg., Gynec. & Obst.*, 1922, xxxv, 23.

The surgical treatment of cancer at the rectosigmoid juncture. H. BRUNN. *Surg. Clin. N. Am.*, 1922, II, 473.

Operation for carcinoma of the rectum with retention of the sphincter. KUERMELL. *Zentralbl. f. Chir.*, 1922, xlix, 604.

A contribution to operation for cancer of the rectum. T. KOEHLER. *Muenchen. med. Wchnschr.*, 1922, lxi, 738.

Resection of the colon. B. SCHIASSI. *Ann. ital. di chir.*, 1922, I, 201.

How can the results from resection of the colon be improved? Investigations on 43 resections of the colon at the Tuebingen Surgical Clinic on carcinoma. W. HARTERT. *Arch. f. klin. Chir.*, 1922, cxix, 643.

Liver, Gall-Bladder, Pancreas, and Spleen

The pathogenesis of traumatic anemic infarcts of the liver. G. LIND. *Sperimentale*, 1922, lxxvi, 141.

The surgery of pylophlebitis following appendicitis. BRUNET. *Zentralbl. f. Chir.*, 1922, xlix, 610.

The surgical aspects of disease of the biliary tract. A. O. WILENKY. *Am. J. M. Sc.*, 1922, cxiv, 44.

Ascariasis of the bile-ducts. A. NUEDORFER. *Wien. klin. Wchnschr.*, 1922, xxxv, 179.

Retrograde cholecystitis. H. HARTMANN and others. *Bull. et mēm. Soc. de chir. de Par.*, 1922, xlviii, 939.

Chronic non-calculous cholecystitis. M. CHIRAY and G. SEMELAIGNE. *Presse méd., Par.*, 1922, xxx, 685.

The clinical picture of cholelithiasis. N. ORTNER. *Wien. klin. Wchnschr.*, 1922, xxxv, 287.

The early signs and symptoms of cholelithiasis. B. MOYNIHAN. *Brit. J. Surg.*, 1922, x, 127.

Surgical injuries of the bile passages. A. E. ACHER. *J. Iowa State M. Soc.*, 1922, xii, 262.

The surgical treatment of gall-bladder disease. W. J. BARRETT. *Hahneman. Monh.*, 1922, lvii, 418.

The etiology and treatment of pseudorelapse following operation for gall-stones. TREPLIN. *Beitr. z. klin. Chir.*, 1922, cxxvi, 108.

Surgical cure of biliary fistulae. KUERMELL, JR. *Zentralbl. f. Chir.*, 1922, xlix, 614. [349]

Cholecystenterostomy. S. POPE. *Surg. Clin. N. Am.*, 1922, II, 533.

A comparison of cholecystostomy and cholecystectomy. J. SHERREN. *Brit. J. Surg.*, 1922, x, 135.

Cholecystostomy or cholecystectomy—which? M. F. PORTER. *Surg., Gynec. & Obst.*, 1922, xxxv, 110.

Should we and may we extend the indications for cholecystectomy (a parallel between diseases of the cecum and gall-bladder). H. ZOEFFEL. *Klin. Wchnschr.*, 1922, I, 583.

The drainage of bile into the intestine after extirpation of the gall-bladder. N. W. WESSELEIN. *Rumk. Physiol. Journ. imeni Šešetchenowa*, 1921, iii, 14. [349]

The surgery of Vater's papilla. O. TENAMI. *Policlin., Rome*, 1922, xxix, sez. chir., 291. [350]

Two cases of common duct obstruction. A. D. BEVAN. *Surg. Clin. N. Am.*, 1922, II, 725.

A case report of acute pancreatitis. J. Y. WELBORN. *Cincinnati J. M.*, 1922, iii, 192.

The spleen and digestion: the spleen and pancreatic secretion. W. D. INLOW. *Am. J. M. Sc.*, 1922, cxiv, 29. [350]

A case of congenital aplasia of the spleen. J. BÓKAY. *Orvosi hetil.*, 1922, lxxvi, 142.

Changes in the morphology and function of the bone marrow after splenectomy. E. E. JOHNSTONE. *Arch. Surg.*, 1922, v, 159.

Irradiation of the spleen and the coagulation of the blood. O. WASSERTRUEDINGER. *Zentralbl. f. Chir.*, 1922, xlix, 734.

Miscellaneous

The acute abdomen. W. G. CRUMP. *J. Nat. M. Ass.*, 1922, xiv, 133.

Subphrenic abscess. J. D. STERNBERG and W. H. WATSON. *Northwest Med.*, 1922, xxi, 217.

Subphrenic abscess. L. F. FISHER. *Transactions Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association*, 1920, 45.

Abdominal tumor—report of an unusual case. U. G. DAILEY. *J. Nat. M. Ass.*, 1922, xiv, 138.

Abdominal trauma. W. U. KENNEDY. *J. Indiana M. Ass.*, 1922, xv, 221.

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

Salvaging of the epiphyses in the growing age. E. LIEK. *Arch. f. klin. Chir.*, 1922, cxlii, 149.

A peculiar and previously unknown form of multiple osteoarticular aneurysms. B. VALENTIN. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, cxlii, 129. [351]

Bone lesions and their treatment. J. H. RISHMILLER. *J. LANCET*, 1922, ii, 349.

The size of punch holes in bone, particularly in the femur of the skull. NITTE. *Deutsche med. Wchnschr.*, 1922, xlviii, 529.

Bone cysts. T. VEREDEN. *Orvosi közl.*, 1922, xli, 1. [351]

Adolescent rickets. P. LEWIN. *Surg., Gynec. & Obst.*, 1922, xxv, 77.

Acute hematogenous osteomyelitis. C. I. STAER. *Arch. Surg.*, 1922, lvi, 207. [352]

Acute osteomyelitis in children. G. H. BUNCH. *J. South Carolina M. Ass.*, 1922, xliii, 125.

The relation of the blood vessels of the bones to acute osteomyelitis. A. NUBENAU. *Zentralbl. f. Chir.*, 1922, cxlii, 306.

A peculiar form of multiple bone tuberculosis (spina ventosa multiplex tuberculosa). E. FRAENKEL. *Beitr. z. Klin. d. Tuberk.*, 1922, l, 441.

Tuberculosis of the bones and joints. J. E. STEWART. *J. Missouri State M. Ass.*, 1922, xlii, 392.

Aneurysms of the bones. C. A. KOPROD and O. SWASY. *J. Am. M. Ass.*, 1922, lxxviii, 1669. [352]

Bone sarcoma. J. W. GIBSON. *J. Bone & Joint Surg.*, 1922, ix, 232.

Sarcoma of the twelfth rib. GAYWOOD. *Surg. Clin. N. Am.*, 1922, li, 211.

Gonorrheal disease of the joints. ANHAUNEN. *Fortschr. d. Med.*, 1922, xl, 141. [352]

Pathologic changes in muscle as a result of disturbances of circulation: an experimental study of Volkmann's ischemic paralysis. B. EPOKKA. *Arch. Surg.*, 1922, v, 188.

A new method of massage and of electrization in joint contracture and muscular paralysis. J. HANAUER. *Rev. d'orthop.*, 1922, ix, 343. [353]

Joint mobilization. E. SCHIEFELMANN. *Ztschr. f. orthop. u. Verwundungsw.*, 1922, l, 187.

A case illustrating the differential diagnosis of muscular atrophy. RUMATIS. *Chicago M. Rec.*, 1922, xlv, 269.

Tumors of the tendon sheaths. F. POMMERHEIM. *Orvosi közl.*, 1922, xl, 179.

A cyst of the maxilla with unusual features. I. W. VERRILL. *Eur. Ear, Nose & Throat Month.*, 1922, i, 225.

Cellulitis cysticiformis of the masseter in man. S. MAZZA and O. FRANKOVICH. *Rev. Asoc. med. argent.*, 1922, xxiv, 7.

A tumor of the scapula. E. I. BARTLETT. *Surg. Clin. N. Am.*, 1922, li, 441.

The spread of pus from the scapular region as shown by experimental experiments. A. J. SIMON. *JABUCHENWITSCH. Inst. d. spez. Chir. u. topogr. Anat. d. Prof. W. N. SCHWENKOWSKI. Petersburg*, 1921. [353]

The painful traumatic shoulder. A. GIBSON. *J. Bone & Joint Surg.*, 1922, ix, 222. [354]

Two new cases of pseudo-epithelioid arthropathy of the shoulder. P. TESSIER and MICHAM. *Rev. d'orthop.*, 1922, ix, 346.

Traumatic epicondylitis. E. B. ACEVEDO. *An. Fac. de med. de Univ. de Montevideo*, 1922, vii, 88.

A bone cyst of the humerus. E. I. BARTLETT. *Surg. Clin. N. Am.*, 1922, li, 433.

Tennis elbow. F. RÖMER. *Lancet*, 1922, cclii, 67.

The treatment of septic injuries to the extremities where there is marked ischaemia, and treatment of acute infections of the extremities. E. D. NEWELL. *Internat. J. Surg.*, 1922, xxv, 231.

Congenital ankylosis of joints of hands and feet. E. M. MILLER. *J. Bone & Joint Surg.*, 1922, ix, 269.

Xiphoiditis. J. K. NARAY. *Illinois M. J.*, 1922, xliii, 27.

A case of tuberculosis of the pubis. A. KRISTY and P. WERTHEIMER. *Rev. d'orthop.*, 1922, ix, 342.

A congenital malformation of the hip complicated by juvenile deforming arthritis. E. ORTSCHITT. *Rev. d'orthop.*, 1922, ix, 342.

The etiology of snapping hip. K. VOGEL. *Ztschr. f. orthop. Chir.*, 1922, xlii, 288.

How to diagnose and treat a bad knee. G. ANDAIN. *Med. Press*, 1922, n.s., cxiv, 76.

Chronic inflammations of the knee joint following injury; experimental and clinical. F. ROST. *Klin. Wchnschr.*, 1922, l, 772.

A contribution to patella bipartita. H. BLENCCKE. *Ztschr. f. orthop. Chir.*, 1922, xlii, 291.

A movable body, originating purely traumatically as a result of tying with a stick, which produces the phenomenon of a "snapping knee." F. LINDE. *Zentralbl. f. Chir.*, 1922, xlix, 741.

The frequency of congenital clubfoot and of congenital dislocation of the hip according to age and sex from 1908 to 1921 in the material of the Leipzig Orthopedic Polyclinic. P. PROFFE. *Ztschr. f. orthop. Chir.*, 1922, xlii, 297.

Fibrous tumors of the foot. M. THOREK. *Ann. Surg.*, 1922, lxxvi, 101.

Ostitis fibrosa of the os calcis as the cause of typical heel pain. H. J. BETTMANN. *Ztschr. f. orthop. Chir.*, 1922, xlii, 299.

A contribution to Koehler's disease of the second metatarsophalangeal joint. B. VALENTIN. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, xxix, 173.

Fractures and Dislocations

Injury of the limbs due to back-fire. A. H. BIZARRO. *Ann. Surg.*, 1922, lxxvi, 81. [355]

New mechanics in bone injuries. H. C. MASLAND. *Ann. Surg.*, 1922, lxxvi, 110.

Unusual fractures. C. W. PEABODY. *J. Bone & Joint Surg.*, 1922, ix, 450.

The origin of pseudarthroses following fractures and bone transplantations. E. LEXER. *Arch. f. klin. Chir.*, 1922, cxlii, 320. [355]

Fractures of the lone bones, with especial reference to treatment by suspension and extension. J. E. CANNADAY. *J. Nat. M. Ass.*, 1922, xiv, 129.

The internal secretions and delayed union of fractures. G. MARINELLA. *Arch. ital. di chir.*, 1922, v, 197. [356]

Observations on the treatment of fractures. F. R. HORTON. *Med. Herald*, 1922, xli, 193.

The use of transference appliances in the treatment of fractures. L. FREEMAN. *Surg., Gynec. & Obst.*, 1922, xxiv, 112.

The preservation of function in joints after fractures. J. P. LORD. *Med. Herald*, 1922, xli, 196.

The cause and prevention of joint stiffness after fractures. H. W. ORR. *Med. Herald*, 1922, xli, 199.

End-results in fractures. J. M. DOOD. *Wisconsin M. J.*, 1922, xli, 52.

Congenital dislocation of the shoulder. T. W. TODD. *Ann. Surg.*, 1922, lxxvi, 70.

Habitual luxation of the shoulder. I. A. MONTAGNE. *Nederl. Maandschr. v. Geneesk.*, 1921, x, 314. [356]

Fractures of the capitellum and trochlea. M. C. LINDEM. *Ann. Surg.*, 1922, lxxvi, 78.

Congenital luxation of the radius with synostosis of both bones of the forearm. M. LOEWY. *Mitt. d. Gesellsch. f. inn. Med. u. Kinderh.*, 1921, xx, 187.

The treatment of fracture involving the lower end of the radius with anterior and posterior wooden splints. T. K. RICHARDS. *Boston M. & S. J.*, 1922, cxxxvii, 113.

Fractures of the lower end of the radius. P. A. BENDIXEN. *J. Iowa State M. Soc.*, 1922, xli, 252.

The treatment of Colles' fracture. H. H. RITTER and W. W. LASSER. *Am. J. Surg.*, 1922, xxxvi, 103.

Carpometacarpal dislocation. E. H. MCLEAN. *J. Am. M. Ass.*, 1922, lxxix, 399.

Open reduction of an old congenital hip dislocation. M. A. BERNSTEIN. *J. Bone & Joint Surg.*, 1922, xx, 481. [357]

The late results of manipulative treatment of congenital dislocation of the hip. E. L. EVANS. *Brit. J. Surg.*, 1922, x, 15. [357]

The late results of treatment of congenital dislocation of the hip. H. A. T. FAIRBANK. *Brit. J. Surg.*, 1922, x, 24. [357]

Muscle interposition: a cause of delayed union in fracture of the femur. F. C. KIDNER and C. B. LAKOFF. *J. Am. M. Ass.*, 1922, lxxix, 200. [358]

Dislocation of the knee. L. H. MEADOWS. *Northwest Med.*, 1922, xxi, 213.

Recurrent dislocation of the patella. W. R. MACAUSLAND and A. F. SARGENT. *Surg., Gynec. & Obst.*, 1922, xxxv, 35.

Longitudinal fracture of the meniscus of the knee. BOSCH-ARANA and DOWLING. *Rev. Assoc. méd. argent.*, 1922, xxxv, 57.

Post-traumatic tertiary syphilis; osteo-arthritis of the knee due to trauma. S. DIEZ. *Policlin.*, Rome, 1922, xlix, sez. chir., 375. [358]

Posterior dislocation of the foot with posterior marginal fracture of the tibia usually with Pott's fracture of the fibula. T. T. THOMAS. *Surg., Gynec. & Obst.*, 1922, xxxv, 98.

Complete dorso-lateral luxation in the metatarsophalangeal joint with subluxation in the tarso-metatarsal joint and multiple fracture from being run over. W. SCHULZ. *Arch. f. klin. Chir.*, 1922, xcix, 126. [359]

Infraction of the head of a metatarsal bone. K. SPEED. *Surg. Clin. N. Am.*, 1922, ii, 737.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

Chronic bone abscess; its treatment by simple evacuation through a drill hole. W. M. BRICKNER. *Surg., Gynec. & Obst.*, 1922, xxxv, 84.

Bone lesions and their treatment. J. H. RISHMILLER. *Transactions Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association*, 1920, 75.

The after-results of twenty-one cases of ilio-colostomy performed for tuberculous bones and joint diseases. H. DRUMMOND. *Brit. M. J.*, 1922, i, 342. [359]

A report of our latest methods in the treatment of surgical tuberculosis. H. KREMMEL, JR., and R. PASCHEN. *Beitr. z. klin. Chir.*, 1922, cxxvi, 200.

The treatment of tuberculosis of the bones and joints. A. BLENCKE. *Beitr. z. klin. Chir.*, 1922, cxxvi, 182.

Primary arthroplasty in tuberculosis. J. WIETING. *Zentralbl. f. Chir.*, 1922, xlix, 589. [359]

A biological study of the bone graft. R. SIMON. *Rev. de chir., Par.*, 1922, xli, 307. [360]

The surgical treatment of pseudarthroses. B. DOLLINGER. *Orvosképzés*, 1922, xli, 30.

The operative treatment of arthritis deformans. A. WOLLENBERG. *Ztschr. f. orthop. Chir.*, 1922, xlii, 275. [361]

Attempts to immobilize tuberculous joints by bone pegging. TUFFIER. *Bull. et mém. Soc. de chir. de Par.*, 1922, xlviii, 927. [361]

Tendon transplantation. R. OLLERENSHAW. *Brit. M. J.*, 1922, ii, 77.

A clinical and experimental study of the free transplantation of fascia and tendon. W. E. GALLIE and A. B. LE MESURIER. *J. Bone & Joint Surg.*, 1922, xx, 600.

The physiological viewpoint in transplantation of tendons. O. BECK. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 64. [361]

Tendon substitution without muscle, a contribution to the study of functional stimulation. A. SALOMON. *Arch. f. klin. Chir.*, 1922, cxix, 608.

Tendon transplantation for musculospiral (radial) nerve injury. R. W. BILLINGTON. *J. Bone & Joint Surg.*, 1922, xx, 538. [362]

The innervation of antagonistic muscles in man according to experiments on patients operated on by the Sauerbruch method. A. BETHE and H. KAST. *Klin. Wchnschr.*, 1922, i, 581. [362]

Arthrodesis of the shoulder joint. W. ROKITZKI. *Verhandl. d. chir. Pirogoff Ges.*, Petrograd, 1921. [362]

"Flat hand" (manus planus): its correction essential to the normal function of the hand. J. E. GOLDTHWAIT. *J. Bone & Joint Surg.*, 1922, xx, 469. [363]

A simple finger splint for digitus varus. G. HOHMANN. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 415.

Repair of tendons in the fingers. S. BUNNELL. *Surg., Gynec. & Obst.*, 1922, xxxv, 88.

The postoperative care of flexion contraction of the hip. S. F. STEWART. *J. Bone & Joint Surg.*, 1922, xx, 548.

Tenodesis of the quadriceps femoris by synostosis of the femur and patella. R. DELLA VEDOVA. *Ann. ital. di chir.*, 1922, i, 113. [363]

Autoplasties with pre-formed cutaneous canals. F. NASSETTI and D. PIZZETTI. *Ann. ital. di chir.*, 1922, i, 369. [364]

An operation for hypertrophied patella. G. E. BENNETT. *J. Bone & Joint Surg.*, 1922, xx, 593.

The comminutive plastic of the tibia in severe rachitic deformities with pseudarthrosis; also some remarks on the regeneration of bone. C. ROUDE. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 281. [364]

The treatment of large defects of the tibia. O. E. SCHULZ. *Casop. lék. česk.*, 1922, lxi, 348. [364]

Transplantation of the fibula. W. R. MACAUSLAND and A. F. SARGENT. *Ann. Surg.*, 1922, lxxvi, 91. [364]

The treatment of paralytic talipes calcaneus. K. VON DITTRICH. *Arch. f. orthop. u. Unfall-Chir.*, 1922, xx, 365.

The diagnosis and treatment of static flat-foot. S. ROMICH. *Wien. klin. Wchnschr.*, 1922, xlix, 195.

Amputation according to Gritti. F. BAEHR. *Zentralbl. f. Chir.*, 1922, xlix, 546.

Orthopedics in General

The fundamental principles of orthopedic, reconstruction and industrial surgery; the real lessons of the world war. H. W. ORR. *J. Am. M. Ass.*, 1922, lxxix, 255.

SURGERY OF THE SPINAL COLUMN AND CORD

- Spinal injuries. B. A. WASHBURN. Kentucky M. J., 1922, 33, 491.
- The operative treatment of scoliosis. A. M. FORDY. J. Bone & Joint Surg., 1922, IV, 449. [366]
- The operative treatment of scoliosis. S. KLEINBERG. N. York M. J. & Med. Rev., 1922, LXVI, 91.
- The treatment of Pott's disease. E. SORRELL. Presse med., 1922, 31, 378. [367]
- Operative vertebral symtosis in the treatment of Pott's disease. A. D. RADULESCO. Rev. d'orthop., 1922, 18, 14, 304. [367]
- Remarks on bone grafting as an aid in the treatment of tuberculous spinal caries. H. M. W. GRAY. Brit. M. J., 1922, 1, 71. [368]
- A case of death due to shock following bone grafting for Pott's disease. SAVARIDIS. Bull. et méém. Soc. de chir. de Par., 1921, 31, 94, 954. [368]
- Fracture-dislocation of the spine. T. B. REEVES. Internat. J. Surg., 1922, XXXV, 229.
- Fracture-dislocation of the cervical spine. A. S. TAYLOR. Ann. Surg., 1922, LXVI, 284.
- A report of two cases of broken back. E. P. SCHOMAN. Internat. J. Surg., 1922, XXXV, 168. [369]
- Fractures and dislocations of the spine with report of five cases. H. S. WILLARD. Northwest Med., 1922, XXI, 296. [369]
- Osteoma of the cervical spine. M. S. HENDERSON. J. Bone & Joint Surg., 1922, XX, 418. [369]
- Dislocated cervical vertebra. R. ANDERSON. Northwest Med., 1922, XXI, 212.
- Dorsalization of the seventh cervical vertebra. FOUILLOUX-BUYAT. Rev. d'orthop., 1922, 18, 18, 333.
- Lateral dislocation in the lumbar spine. J. N. J. HARTLEY. Edinburg M. J., 1922, N.S. XXIX, 34.
- The "lumbo-sacral fontanelle" and its relationship to spina bifida occulta. A. HINTZE. Arch. f. klin. Chir., 1922, CCIX, 490. [369]
- Spinal cord tumors. A. D. YOUNG. J. Oklahoma State M. Ass., 1922, XV, 228.
- The successful removal of an extra-medullary cord tumor in the lower dorsal region. W. F. SCHALLER and A. WEEKS. California State J. M., 1922, XX, 224. [370]

SURGERY OF THE NERVOUS SYSTEM

- The surgical treatment of sciatia. H. GRAFF. Beitr. z. klin. Chir., 1922, CCXVI, 287.
- Neurological sketches. O. YERAGUTH. Schweiz. med. Wchschr., 1922, III, 445.
- Alcohol injection in facial neuralgia. W. HARRIS. Lancet, 1922, CCIII, 122.
- Leriche's peripheral sympathectomy in severe cases of causalgia. W. TURBIN. Klin. Med., 1920, I, 1. [371]

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

- Total transposition of the viscera. H. H. SHERK. Surg., Gynec. & Obst., 1922, XXIV, 53.
- The present status of tumor research. O. LUBARSCH. Klin. Wchschr., 1922, I, 1041.
- New points of view in the treatment of malignant tumors. KOTZENBERG. Beitr. z. klin. Chir., 1922, CCXVI, 226.
- Longevity in cancer. W. C. MCCARTY. Ann. Surg., 1922, LXVI, 9.
- A study of malignant multiple tumors of different kinds. A. BERTOCCHI. Policlin., Rome, 1922, XXIX, sez. chir., 361.
- A study of cancerous disease. A. FRAENKEL. Wien. klin. Wchschr., 1922, LXXXV, 97, 132.
- A report of a case of primary endothelioma of lymph glands. T. E. CIRC. Chicago M. Rec., 1922, LXIX, 251.
- Pyrophosphorus of malignant growths of the mouth, face and jaw. J. R. EASTMAN. J. Am. M. Ass., 1922, LXIX, 115.
- Retroperitoneal sarcoma in children with report of a case. S. G. GROVER. Arch. Pediat., 1922, XXXIX, 415.
- Gonorrhea inguinale. A. RANDALL, J. C. SMALL and W. P. REILLY. Surg., Gynec. & Obst., 1922, LXVI, 717. [371]
- The pathology and operative treatment of noma. J. A. GELJANITZ. Sitzungsab. d. Ver. f. theoret. u. prakt. Med., 1921. [372]
- The specific local therapy of furunculosis. A. VON WASSERMANN. Muenchen. med. Wchschr., 1922, LXIX, 126.
- The intramuscular administration of sodium citrate. H. NEUBER and S. HIRSCHFELD. Ann. Surg., 1922, LXVI, 1.
- Blood**
- Spontaneous hemorrhages of obscure origin. G. B. RHODES. Cincinnati J. M., 1922, III, 185.
- Blood transfusion. STICH. Klin. Wchschr., 1922, I, 977.
- Blood transfusion. C. L. DE JONGH. Nederl. Maandschr. v. Geneesk., 1921, X, 640. [373]
- Blood transfusion and reinfusion of the patient's own blood. GODER. Deutsche Ztschr. f. Chir., 1922, CLXX, 384.
- The results and experiences with the direct Oelbeck-er blood transfusion. F. BOSHOF. Muenchen. med. Wchschr., 1922, LXIX, 671.
- The indirect blood transfusion with a modified Kimpton-Brown tube. H. F. O. HABERLAND. Arch. f. klin. Chir., 1922, CCIX, 840.
- Blood and Lymph Vessels**
- A clinical study of 120 cases of thromboangitis obliterans among the Japanese. K. KOYANO. Acta scholae med. univ. imp. Kyoto, 1922, IV, 489.
- Two rare localizations of hemangiomas. F. KROLL. Med. Klin., 1922, XXVIII, 564. [373]
- An extramedullary tumor (endothelioma) improved by operation and X-ray treatment. H. SCHLESINGER. Mitt. d. Gesellsch. f. inn. Med. und Kinderh., 1921, XX, 180.
- A case of traumatic arterial stupor. A. G. GALLO and B. N. CALCAGNO. Semana med., 1922, XXIX, 238.

Sera, Vaccines, and Ferments

- The present status of serum therapy. U. FRIEDEMANN. Klin. Wchschr., 1922, I, 1028. [372]

Alloplasty by the adhesive method in wounds of the blood vessels. H. F. O. HABERLAND. *Zentralbl. f. Chir.*, 1922, *xxx*, 542.

Ligatures and arterial sutures. P. MAUCLAIRE and A. CAMBACQX. *Bull. et mém. Soc. de chir. de Par.*, 1922, *slviii*, 945.

The ligation of the anterior tibial artery with a tenaculum incision in the crural fascia. R. SPANNER. *Zentralbl. f. Chir.*, 1922, *xxx*, 745.

A case of aneurism of the ductus arteriosus. R. HUTCHINSON. *Med. Press*, 1922, n.s. *cxlv*, 32.

Aneurism of the popliteal artery. H. McKENNA. *Surg. Clin. N. Am.*, 1922, *ii*, 563.

The proper treatment of chronic malign diseases of the superficial lymph glands. J. L. YATES. *Arch. Surg.*, 1922, *v*, 85. [374]

Gummatous cervical adenitis. W. P. COUES. *Boston M. & S. J.*, 1922, *clxxiv*, 65.

General Bacterial Infections

Staphylococcus infections of the face and lips. W. MARTIN. *Ann. Surg.*, 1922, *lxxvi*, 13.

Surgical Diagnosis, Pathology, and Therapeutics

Pathologic and therapeutic paralysis of the diaphragm. K. LANGE. *Deutsche Ztschr. f. Chir.*, 1922, *clxix*, 199.

Experimental Surgery and Surgical Anatomy

The secretion of the adrenal. Ssawitsch and Tonkich. *Russk. Physiol. Journ. imeni Ssetchwenowa*, 1921, *iii*, 45. [375]

The influence of the internal secretion of the testicle and the prostate on metabolism. Bocoslowsky and Korotischewsky. *Russk. Physiol. Journ. imeni Ssetchwenowa*, 1921, *iii*, 47. [375]

The influence of stimulation of the vagus on the secretion of intestinal ferments. Ssawitsch and Ssachensstwen-ski. *Russk. Physiol. Journ. imeni Ssetchwenowa*, 1921, *iii*, 45. [375]

"Arterial flaps" and "epithelial inlays." J. F. S. ESSER. *München. med. Wchnschr.*, 1922, *lxix*, 669.

Experimental contributions to the question of bone transplantsations. S. M. KROPVELD. *Nederl. Maandschr. v. Geneesk.*, 1921, *x*, 471. [376]

Histologic changes in the nervous system in animals subjected to thyroidectomy and to parathyroidectomy. J. J. RASDOLSKI. *Russk. Physiol. Journ. imeni Ssetchwenowa*, 1921, *iii*, 39. [377]

The topography of cervical ribs. O. AICHEL. *Beitr. z. klin. Chir.*, 1922, *cxxvi*, 248.

The position of the transverse colon. P. A. KUPRIJANOFF. *Monograph*, St. Petersburg, 1921. [377]

Roentgenology and Radium Therapy

The X-ray as a microscope. W. W. WASSON. *J. Radiol.*, 1922, *iii*, 268.

The roentgenologic differential diagnosis between diaphragmatic hernia and diaphragmatic eventration and right sided diaphragmatic eventration. J. FREED and E. HORNER. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, *xxix*, 301.

Diagnostic pneumothorax. R. STAHL. *Fortschr. a. d. Geb. d. Roentgenstrahlen*, 1922, *xxix*, 169.

Artificial pneumoperitoneum. E. MOONS and M. PEREMANS. *Vlaamsche geneesk. Tijdschr.*, 1922, *iii*, 181.

The value of the X rays in the diagnosis of disease of the stomach. G. CAMPOS. *Arch. de med., cirug., y especial.*, 1922, *viii*, 255.

The roentgenologic aspects of gastric ulcer. R. D. CARMAN. *Ann. Clin. Med.*, 1922, *i*, 51.

The supernumerary pedal bones. M. I. BIERMAN. *Am. J. Roentgenol.*, 1922, n.s. *ix*, 404.

Some of the less common uses of X-ray therapy. C. E. RICHARDS. *J. Radiol.*, 1922, *iii*, 271.

The irradiation treatment of cancer. O. STRAUSS. *Deutsche med. Wchnschr.*, 1922, *xlvi*, 385, 416.

The production of penetrating X-rays. W. DUANE. *Am. J. Roentgenol.*, 1922, n.s. *ix*, 391.

Deep radiotherapy. C. HEUSER. *Semana méd.*, 1922, *xxix*, 40.

Postoperative mastoid treatment with X ray. C. GOOSMANN. *J. Radiol.*, 1922, *iii*, 273.

The question of dosage in the roentgen treatment of tuberculous joints. O. JUENGLING. *Beitr. z. Klin. d. Tuberk.*, 1922, *i*, 452.

Radiotherapy of the prostate, rectum, cervix of the uterus, vagina, and urethra. C. HEUSER. *Semana méd.*, 1922, *xxix*, 318.

The use of radium needles in the treatment of cancer. C. F. BOWEN. *J. Radiol.*, 1922, *iii*, 265.

The problem of the radium therapy of cancer. A. BURROWS. *Brit. M. J.*, 1922, *ii*, 33.

The influence of ultraviolet rays upon the processes of cicatrization of ulcer and wounds. R. RASERO. *Riforma med.*, 1922, *xxviii*, 772.

Legal Medicine

Sale of practice—issuance of prescriptions. Clabaugh vs. Heibner et al. (Mo.), 236 S. W. R., p. 396. [378]

Negligent treatment of fracture. Petefish vs. Morrison (Kan.), 205 Pac. R., p. 651.

Implied authority to make exploratory incisions and extend operation. King vs. Carney (Okla.), 204 Pac. R., p. 270.

Indictable prescribing of narcotics. United States vs. Behrman (U. S.), 42 Sup. Ct. R., p. 303. [379]

GYNECOLOGY

Uterus

Uterine hemorrhage of endocrinopathic origin. S. H. GEIST. *Surg., Gynec. & Obst.*, 1922, *xxiv*, 702. [380]

Radiotherapy in the treatment of uterine bleeding. S. D. NEELY. *J. Oklahoma State M. Ass.*, 1922, *xv*, 225.

Rupture of the uterus. R. I. FURBER. *Med. J. Australia*, 1922, *ii*, 11.

The etiology and treatment of prolapse. F. W. LYNCH. *Surg. Clin. N. Am.*, 1922, *ii*, 553.

The surgical treatment of uterine prolapse. J. M. HUNDLEY and J. M. HUNDLEY, JR. *Ann. Surg.*, 1922, *lxxvi*, 106. [380]

Uterine polyps—histology, symptomatology and suggestion as to the etiology. S. H. GEIST. *Am. J. Obst. & Gynec.*, 1922, *iv*, 30. [380]

Suppurating uterine myomata. W. E. DARNALL. *N. York M. J. & Med. Rec.*, 1922, *cxvi*, 17.

Uterine fibroids and surgical treatment. A. W. PIGFORD. *J. Oklahoma State M. Ass.*, 1922, *xv*, 215.

Treatment of uterine fibroids. W. F. SHAW. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Obst. & Gynec., 51.

Tuberculosis of the cervix with a case report. A. B. SULLIVAN. *Surg. Clin. N. Am.*, 1922, ii, 351.

Cancers of the cervix. L. A. TURLEY. *J. Oklahoma State M. Ass.*, 1922, iv, 120.

Two cases of early carcinoma of the uterus treated by vaginal hysterectomy. L. E. PRANSKY. *Boston M. & S. J.*, 1922, cxcvii, 115. [381]

Carcinoma of the cervix uteri in the nulliparous woman. F. C. HAMMOND. *N. York M. J. & Med. Rec.*, 1922, cxvi, 14.

Extension of carcinoma of the cervix to the vagina. A. LEITCH. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Obst. & Gynec., 49.

A description of an operation for radiation of iliac glands and deep tissues in cases of carcinoma of the cervix. M. DUBATHON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Obst. & Gynec., 67.

A postulatory report on the treatment of carcinoma of the cervix uteri at the Women's Hospital, Melbourne. C. E. DUNN. *Med. J. Australia*, 1922, ii, 32.

Hysterectomy. W. D. PHILLIPS. *N. Orleans M. & S. J.*, 1922, lxxv, 8.

Adnexal and Peri-Uterine Conditions

An analogue in the female to varicocele in the male. F. EISELMANN. *Beitr. z. klin. Chir.*, 1922, cxxvi, 218. [381]

A case of large ovarian cyst. C. B. MCCONAGHY. *Indian M. Gaz.*, 1922, lvi, 97.

Ovarian cysts during pregnancy and labor. R. BELLO. *Rev. argent. de obst. y ginec.*, 1922, vi, 211.

A study on cysts of the corpus luteum. R. KELLER. *Gynec. et obst.*, 1922, v, 458.

Laparotomy for umbilical abscess of the ovary, absolute closure of the abdominal wall, and cicatrization per primam. J. G. RICE. *Semana med.*, 1922, cxix, 149.

Endometrial hamatomata of the ovary. J. V. MEIGS. *Boston M. & S. J.*, 1922, cxcvii, 1. [381]

Primary mucigerous glandular cancer of the ovary. G. SCHICKEL. *Gynec. et obst.*, 1922, v, 446. [382]

A plea for oophorectomy on all pathological ovaries. S. RUTTENBERG and G. SCHWARTZ. *N. York M. J. & Med. Rec.*, 1922, cxvi, 39.

Ectopic pregnancy. C. CULBERTSON. *Surg. Clin. N. Am.*, 1922, ii, 583.

Interstitial pregnancy. E. A. FOX. *Rev. argent. de obst. y ginec.*, 1922, vi, 216.

Abdominal pregnancy as observed in the Charity Hospital of New Orleans. P. GRAFFAGNINO. *Am. J. Obst. & Gynec.*, 1922, iv, 71.

Primary abdominal pregnancy. P. JACQUIN. *Gynec. et obst.*, 1922, v, 492.

Lithokelypho-extra-uterine pregnancy at term. C. A. CASTANO. *Rev. argent. de obst. y ginec.*, 1922, vi, 199.

Chorioepithelioma and its treatment. F. W. LYNCH. *Surg. Clin. N. Am.*, 1922, ii, 577.

Hydatiform mole, with a report of ten cases. G. L. BROOKHEAD and F. A. KASPERHOLM. *Am. J. Obst. & Gynec.*, 1922, iv, 45. [383]

External Genitalia

Diphtheritic vulvitis. Z. A. MAGUIRE. *Med. J. Australia*, 1922, ii, 94.

A consideration of the causes of vaginal bleeding. J. C. CALHOUN. *Hahneman Month.*, 1922, lvii, 437.

Urethrocele in the female as studied by McCarthy's urethro-cystoscope. VILLEMEN. *J. d'uroi. méd. et chir.*, 1922, xiv, 27.

Miscellaneous

Sterility in the female. G. B. JACKSON. *J. Indiana M. Ass.*, 1922, xv, 224.

The pneumoperitoneum as an aid in obstetrical and gynecological diagnosis. E. C. SAGE. *Nebraska State M. J.*, 1922, vii, 244.

Gynecologic physiotherapy. R. PACHECO. *Arch. brasil. de med.*, 1922, xii, 214.

Diathermy in gynecology. J. GUARDADO. *Rev. argent. de obst. y ginec.*, 1922, vi, 228.

The uses of radium in gynecology. T. H. CHERRY. *N. York M. J. & Med. Rec.*, 1922, cxvi, 6.

Radium therapy, with special reference to disease of the female pelvis. J. B. DEAYER. *Therap. Gaz.*, 1922, xli, 457.

Radium therapy in certain gynecological conditions. S. TOLLEY. *N. York M. J. & Med. Rec.*, 1922, cxvi, 1.

Clinical research on the tonus of the sympathetic and para-sympathetic in connection with menstruation disturbances especially menorrhoea. J. KREIS. *Gynec. et obst.*, 1922, v, 543.

Spontaneous pelvic peritonization in the female based on 251 laparotomies and twelve autopsies. O. BEUTNER. *Rev. argent. de obst. y ginec.*, 1922, vi, 99. [383]

OBSTETRICS

Pregnancy and Its Complications

The possibility of applying the Meinicke test to the biologic diagnosis of pregnancy. A. GENTILL. *Sperimentale*, 1922, lxxvi, 177.

Simultaneous double pregnancy: intra- and extra-uterine. C. P. COLISTAO. *Rev. med. d. Uruguay*, 1922, xxv, 476.

The treatment of pernicious vomiting of pregnancy. C. ORRILLI. *J. Obst. & Gynec. Brit. Emp.*, 1922, cxix, 303.

The relationship of eclampsia to the other toxemias of pregnancy. G. FRYMANS. *Med. Press*, 1922, n.s. cxiv, 75.

A consideration of the pregnancy toxemia known as eclampsia. R. McPHERSON. *Am. J. Obst. & Gynec.*, 1922, iv, 38.

Hypertthyroidism in pregnancy. A. L. ROBINSON. *J. Obst. & Gynec. Brit. Emp.*, 1922, cxix, 296.

Organic diseases of the nervous system complicating pregnancy: with a report of two cases. E. A. SCHUMANN and H. S. FIST. *Am. J. Obst. & Gynec.*, 1922, iv, 67.

Eye conditions in pregnancy. C. GRAEF. *Canadian M. Ass. J.*, 1922, xii, 481.

Pregnancy and heart disease considered from a medical viewpoint. W. W. HERRICK. *Am. J. Obst. & Gynec.*, 1922, iv, 1.

Addison's disease complicating pregnancy, labor, or the puerperium. G. FITZ-PATRICK. *Surg., Gynec. & Obst.*, 1922, xxxv, 72.

Pyelitis during pregnancy and the puerperium. C. J. CROFT. *Canadian M. Ass. J.*, 1922, xii, 474.

Pyelitis in pregnancy. P. TIRUS. *Pennsylvania M. J.*, 1922, xxv, 680.

Glycosuria in pregnancy. R. L. M. WALLIS and J. P. BOSS. *J. Obst. & Gynec. Brit. Emp.*, 1922, cxix, 274.

- An endeavor to evaluate chronic sepsis in pregnancy. J. E. TALBOT. *Surg., Gynec. & Obst.*, 1922, XXXV, 42.
- Premature separation of a normally implanted placenta. W. HILDEBRITH. *Am. J. Obst. & Gynec.*, 1922, IV, 79.
- The problems of fetal post-maturity and prolongation of pregnancy. J. W. BALLANTYNE and F. J. BROWNE. *J. Obst. & Gynec. Brit. Emp.*, 1922, XXIX, 127.
- Report of a case of pregnancy following the menopause. M. L. BRANDT. *N. York M. J. & Med. Rec.*, 1922, CXVI, 38.

Labor and Its Complications

- The test of labor. W. G. LEE. *Surg., Gynec. & Obst.*, 1922, XXXV, 63.
- Uterine dystocia: the importance of a uniform nomenclature. E. ZARATE. *Gynec. et obst.*, 1922, VI, 1.
- The treatment of pelvic dystocia. J. RHENTER. *Gynec. et obst.*, 1922, VI, 10.
- Pseudo-occlusion of the intestine by a tumor before labor, resection of the tumor, disappearance of the syndrome of occlusion; premature spontaneous delivery. M. L. PUECH. *Rev. argent. de obst. y gynec.*, 1922, VI, 202.
- The high forceps. O. DE SOUZA. *Rev. de gynec. e d'obst.*, 1922, XVI, 213.
- The etiology of deep transverse arrest in median vertex presentation. F. GROSS. *Am. J. Clin. Med.*, 1922, XXIX, 501.
- Certain points in the management of the second stage of labor. R. McPHERSON. *Bull. Lying-in Hosp., N. Y.*, 1922, XII, 82.
- The diagnosis of ruptured uterus in practice. J. B. GONZALEZ. *Rev. argent. de obst. y gynec.*, 1922, VI, 255.
- Once a caesarean always a caesarean. E. B. PIPER. *N. York M. J. & Med. Rec.*, 1922, CXVI, 10.
- Two complicated deliveries requiring caesarean section. J. C. APPLIGATE. *N. York M. J. & Med. Rec.*, 1922, CXVI, 9.
- Is exteriorization of the gravid uterus useful in the conservative caesarean operation? V. CATHALA. *Rev. franc. de gynec. et d'obst.*, 1922, XVII, 321.
- The end results of abdominal caesarean section. E. L. KING. *J. Am. M. Ass.*, 1922, LXXIX, 112. [384]
- Low cervical caesarean section (laparotrachelotomy): results in 145 cases. J. B. DE LEE and E. L. CORNELL. *J. Am. M. Ass.*, 1922, LXXIX, 109. [384]

- The present status of subcutaneous pubiotomy. P. NUBOLA. *Arch. de gynec. obst. y pediat.*, 1922, XXXV, 121.
- Subcutaneous pubiotomy: its indications and contraindications. J. GONZALEZ. *Arch. de gynec. obst. y pediat.*, 1922, XXXV, 123. [385]
- The clinical results of subcutaneous pubiotomy. J. ARNALOT. *Arch. de gynec. obst. y pediat.*, 1922, XXXV, 116.
- Symphysiotomy. R. B. MORON. *Rev. argent. de obst. y gynec.*, 1922, VI, 206.

Puerperium and Its Complications

- Etiological and therapeutical study of puerperal endometritis. L. G. GREI. *Seminario med.*, 1922, XXIX, 198.
- Postpartum hemorrhage. M. HORNSTEIN. *N. York M. J. & Med. Rec.*, 1922, CXVI, 34.
- Some aspects of puerperal mortality and morbidity. E. S. MEYERS. *Med. J. Australia*, 1922, II, 54.

New-Born

- General edema of the foetus. N. B. CAPON. *J. Obst. & Gynec. Brit. Emp.*, 1922, XXIX, 239. [385]
- The pathology of foetal maceration; a study of twenty-four cases. G. I. STRACHAN. *Brit. J. M.*, 1922, II, 80.
- Hemorrhages in the new-born. J. R. LOSEE. *Bull. Lying-in Hosp., N. Y.*, 1922, XII, 100.
- Cerebral hemorrhage in the new-born. J. R. LOSEE. *Bull. Lying-in Hosp., N. Y.*, 1922, XII, 109.

Miscellaneous

- The value of rectal palpation in obstetrics. A. PERROLA. *Rev. franc. de gynec. et d'obst.*, 1922, XVII, 330.
- Röntgenography in obstetrics. D. A. HORNER. *Surg., Gynec. & Obst.*, 1922, XXXV, 67.
- Drug treatment in obstetrics. L. P. WINTERBOTHAM. *Med. J. Australia*, 1922, II, 56.
- The transfusion of blood in obstetrics. N. P. COSTA and N. CUNEO. *Rev. argent. de obst. y gynec.*, 1922, VI, 215.
- Syphilis in relation to abortion, stillbirths and infant mortality. W. G. COSBIE. *Am. J. Obst. & Gynec.*, 1922, IV, 40.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

- The relation of the adrenals to muscular activity. F. A. HARTMAN. *Endocrinology*, 1922, VI, 311.
- Contribution to the study of struma suprarenalis cystica hæmorrhagica. C. H. LASCH. *Beitr. z. klin. Chir.*, 1922, CXXV, 467.
- The value of the methods employed in internal medicine to determine the function of the kidneys. SCHLAYER. *Arch. de med., cirug. y especial.*, 1922, VIII, 264.
- Traumatic kidney. H. L. KRETSCHMER. *Surg. Clin. N. Am.*, 1922, II, 801.
- Recent gunshot wounds of the kidney: with report of four cases. D. C. STRAUS. *Surg. Clin. N. Am.*, 1922, II, 645.
- Bilateral renal calculus. A. G. CASARTEGO. *Rev. de med. y cirug. de la Habana*, 1922, XXVII, 515.
- The removal of renal calculus from the pelvis of a floating kidney, the second kidney being absent. A. J. OCHSNER. *Surg. Clin. N. Am.*, 1922, II, 593.

- Bilateral hypoplastic cystic kidneys; report of a case simulating chronic diffuse nephritis in a girl three years of age. C. H. GREENE. *Am. J. Dis. Child.*, 1922, XXIV, 1.
- Hydronephrosis. G. V. JAMES. *Madras M. J.*, 1922, V, 25.
- Lingual perinephritis. F. GRECO. *Ann. ital. di chir.*, 1922, I, 281.
- Traumatic rupture of the kidney. V. F. MARSHALL. *Am. J. Surg.*, 1922, XXXVI, 195.
- Tumor of the kidney. R. H. HERBST. *Surg. Clin. N. Am.*, 1922, II, 827.
- Tumors of the kidney in infancy and childhood. C. G. MIXTER. *Ann. Surg.*, 1922, LXXVI, 52.
- An unusual case of hypernephroma. E. C. BAUMGARTEN. *J. Michigan State M. Soc.*, 1922, XXI, 286.
- Nephrectomy based on the observation of the (renal) constant. J. QUÉNU. *J. d'urolog. méd. et chir.*, 1922, XIV, 1.
- Anomalous relationship of the right ureter to the inferior vena cava. R. C. GRAVES and L. M. DAVIDOFF. *J. Urol.*, 1922, VIII, 75.

Impacted calculus in the juxtavesical portion of the ureter; evidence of ureterolithiasis under local anesthesia. G. L. MCWHIRTER. *Surg. Clin. N. Am.*, 1922, 6, 759.

Bladder, Urethra, and Penis

Intraperitoneal rupture of the urinary bladder cured without operation. N. A. NICHOLAVSEN. *Zentralbl. f. Chir.*, 1922, xlii, 604.

Intraperitoneal rupture of the bladder. T. T. TURNER. *Ann. Surg.*, 1922, lxxvi, 54.

A case of cancer developed on an extensible bladder. R. DUPONT. *J. d'uról. mèd. et chir.*, 1922, xli, 413.

The management of cancer of the bladder. G. G. SMITH. *Boston M. & S. J.*, 1922, clxxvii, 97.

When should Morgagni's hernia be occupied in the treatment of prosthesis? J. JANET. *J. d'uról. mèd. et chir.*, 1922, xli, 443.

Embryology of urethral structures. H. BÉCLÈRE and R. HENRY. *J. d'uról. mèd. et chir.*, 1922, xli, 417.

The repair of urethral defects by the Ekelsen mobilization of the penis. P. SEDGWICK. *Beitr. z. klin. Chir.*, 1922, cxcvi, 126.

Tuberculous chancre. J. A. NIXON and A. R. SHORT. *Brit. J. Surg.*, 1922, 2, 44.

Genital Organs

Transplantation of the testicle and homosexuality. E. KREUTER. *Zentralbl. f. Chir.*, 1922, xlii, 138.

The so-called cystic disease of the testicle. R. GRIGNANI. *Ann. Ital. di chir.*, 1922, 4, 352.

Prostate without a prostate. B. HECTOR SÁNCHEZ. *Rev. de mèd. y ciruj.*, 1922, v, 172.

Studies on the anatomy and clinical aspects of prostatic hypertrophy. J. TAMPLE and O. ZUCKERMAN. *Berlin: Julius Springer*, 1922.

The prostate and prostatic hypertrophy. W. A. MICHRENS. *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxv, 1894.

Hypertrophy and carcinoma of the prostate gland. R. H. HENRY. *Surg. Clin. N. Am.*, 1922, 6, 831.

Concerning median prostatectomy. J. OHLER. *Zentralbl. f. Chir.*, 1922, xlii, 140.

Considerations in suprapubic prostatectomy. J. S. EISENBAUM. *Illinois M. J.*, 1922, xlii, 41.

A contribution to the after-treatment of patients who have had a suprapubic prostatectomy. E. GEISER. *Zentralbl. f. Chir.*, 1922, xlii, 1927.

Miscellaneous

An improved medium for urography. S. R. WOODRUFF. *Internat. J. Surg.*, 1922, xxxv, 247.

The prognosis in surgery of the urinary system. B. SMYTON. *Med. J. Australia*, 1922, ii, 27.

Urologic surgery in pediatrics. H. L. KRETSCHMER. *J. Am. M. Ass.*, 1922, lxxix, 286.

The more common causes of chronic urinary obstruction in male children. W. A. FRONTZ. *South. M. J.*, 1922, xv, 570.

On the significance of pyuria in children. J. S. FOWLER. *Edinburgh M. J.*, 1922, n.s. xlix, 1.

Actinomycosis of the scrotum. K. DEMJANOVICH. *Orvosekézés*, 1922, xli, 193.

SURGERY OF THE EYE AND EAR

Eye

The place of ophthalmology in the undergraduate medical curriculum. W. G. M. BYARS. *Brit. M. J.*, 1922, B, 4.

Mite infestations in diseases of the eye. C. B. WILLIAMS. *Eye, Ear, Nose & Throat Month.*, 1922, 4, 253.

Observations on the iris in health and disease as seen with the slit lamp. A. J. RUSSELL. *J. Am. M. Ass.*, 1922, lxxix, 770.

Essential deposits of cholesterol in corneal scar. R. A. GREEVER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 72.

Macroscopical section of a series of sympathizing eyes examined microscopically. R. A. GREEVER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 31.

A case of blepharochalasis. R. A. GREEVER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 21.

An unusual condition of the retinal arteries. H. GEYMSHOLTZ. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 28.

Two cases of enophthalmos. H. J. HYER and W. VAN DE FRYE. *Am. J. Ophth.*, 1922, v, 348.

A case of symmetrical muscular disease. F. A. JULER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 24.

Recovery of vision after incipient panophthalmitis following cataract extraction. H. KIRKPATRICK. *Brit. M. J.*, 1922, B, 72.

Woundless trachoma. J. M. PATTON. *Am. J. Ophth.*, 1922, v, 343.

Retinal degeneration of the retina in a boy aged 8. R. F. FOX. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 26.

Superficial punctate keratitis. E. D. WATKINS. *Am. J. Ophth.*, 1922, v, 346.

So-called solid adenoma; lymphoma. A. J. BELL. *Am. J. Ophth.*, 1922, v, 329.

Entropion following influenza, with new surgical procedure. C. A. CLAPP. *Am. J. Ophth.*, 1922, v, 342.

Gumdot wound of the right eye; plastic operation on the lid—an intermediate stage. M. W. B. OLIVER. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 23.

A report of three cases of tuberculosis of the conjunctiva. F. NICOLIS. *Arch. Ophth.*, 1922, li, 379.

Sub-conjunctival advancement. G. YOUNG. *Brit. J. Ophth.*, 1922, vi, 323.

The removal of filaria from under the conjunctiva. E. CHARLES. *Brit. J. Ophth.*, 1922, vi, 321.

A case of bilateral enlargement of the lacrimal glands. R. THORPE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 27.

Intra-ocular foreign body of forty-six years' duration. W. S. FRANKLIN and F. C. CORDEN. *Am. J. Ophth.*, 1922, v, 123.

Chronic carbon monoxide amblyopia. H. M. THOMPSON. *Colorado Med.*, 1922, xix, 143.

Retinitis proliferans from anemia produced by Hodgkin's disease. G. H. BILL. *Am. J. Ophth.*, 1922, v, 331.

Circinate retinitis to nasal side of optic disc, with excavation of the optic disc. R. BATTEN. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophth., 22.

Lipemia retinalis: report of two cases. H. P. WAGENER. *Am. J. Ophth.*, 1922, v, 321.

Tabes and optic atrophy. L. PATON. *Brit. J. Ophth.*, 1922, vi, 289.

Three cases of choroidal sarcoma, with notes on the microscopic appearances. H. J. MAY and F. A. WILLIAMSON-NORRLE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Ophthalm., 24.

Puerperal metastases in the eye. P. LUTRINGER. *Gynec. et obst.*, 1922, v, 313.

Improved chalazion forceps. S. W. GREEN. *J. Am. M. Ass.*, 1922, lxxix, 40.

Exstero-neurotomy with an endothesis as a substitute for enucleation. T. J. DIMITRY. *Arch. Ophthalm.*, 1922, li, 365.

Tumors, pseudo tumors and foreign bodies of the orbits. T. KINDEL. *Beitr. z. klin. Chir.*, 1922, cxxvi, 920.

The tendon tucker and method of suturing. F. E. BERCH. *Arch. Ophthalm.*, 1922, li, 360.

Relations between eye and ear (including the vestibular organ). J. VAN DER HORST. *Arch. Ophthalm.*, 1922, li, 321.

Ocular manifestations of internal secretion. E. FUCHS. *Arch. Ophthalm.*, 1922, li, 327.

Some remarks on penetrating injuries of the eye by steel particles. F. ALLPORT. *Illinois M. J.*, 1922, xlii, 31.

Intra-ocular foreign body. L. D. BROSE. *Arch. Ophthalm.*, 1922, li, 354.

The Barraquer operation. M. L. DAZA. *Semana méd.*, 1922, xlix, 123.

The intracapsular expression extraction of cataract. A. S. GREEN and L. D. GREEN. *Arch. Ophthalm.*, 1922, li, 338.

Embolic appearances of senile cataract. A. G. EAST. *Brit. J. Ophthalm.*, 1922, vi, 305.

Glaucoma following cataract extraction. W. RALSTON and E. L. GEAR. *South M. J.*, 1922, xv, 381.

A case of orbital cellulitis involving both orbits, with a thrombophlebitis of retro orbital veins, caused by interstitial gingivitis. J. A. McCaw. *Colorado Med.*, 1922, xix, 138.

Extraction of the lens in its capsule. T. F. S. SMITH. *Indian M. Gaz.*, 1922, lvi, 253.

Ear

Self-retaining mastoid retractor. M. M. CULLOM. *Laryngoscope*, 1922, xxxii, 358.

A consideration of acute aural disease in children. A. S. KAUFMAN. *J. Am. M. Ass.*, 1922, lxxix, 208.

Cases of functional deafness. D. McKENNE. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 43.

A case in which both meatuses are closed by false membranes. W. M. MOLLISON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 47.

Very extensive infection of the lateral sinus and jugular vein, followed by recovery. N. PATTERSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 48.

Lateral sinus suppuration with an unusual history. N. PATTERSON. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 48.

An experiment in graduate training in otolaryngology. G. E. SHAMBAUGH. *J. Am. M. Ass.*, 1922, lxxix, 366.

Aural sepsis in infancy and childhood. W. STUART-LOW. *Practitioner*, 1922, cix, 57.

The otolaryngologist in the science and art of medicine and surgery. J. A. STUCKY. *J. Am. M. Ass.*, 1922, lxxix, 258.

Ambulatory abscess of otitic origin. H. ABOLKER. *Eye, Ear, Nose & Throat Month.*, 1922, i, 249.

Two cases of otibiosis. F. A. BURTON. *Am. J. Surg.*, 1922, xxxvi, 171.

A case of extradural abscess, meningitis and cerebellar abscess, recovery. E. D. D. DAVIS. *Proc. Roy. Soc. Med., Lond.*, 1922, xv, Sect. Otol., 44.

Misconceptions regarding the import of retraction of the drum membrane. E. P. FOWLER. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 483.

The price of neglect in acute otitis media. E. R. GANDY. *N. Orleans M. & S. J.*, 1922, lxxv, 1.

A case of Bezold's mastoiditis preceded by thirty years of middle ear suppuration. C. N. HOWARD. *J. Indiana M. Ass.*, 1922, xv, 232.

Mastoiditis hyperphastica serosa. J. W. JERVEY. *J. Am. M. Ass.*, 1922, lxxix, 377.

The problem of middle ear mechanics. A. G. POHLMAN. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 430.

Three cases of labyrinthitis secondary to chronic suppurative otitis media. G. E. SHAMBAUGH. *Surg. Clin. N. Am.*, 1922, ii, 783.

Labyrinthine surgery. J. M. SMITH. *N. York M. J. & Med. Rev.*, 1922, cxvi, 85.

The present status of the radical mastoid operation. S. M. SMITH. *Pennsylvania M. J.*, 1922, xxv, 699.

Acute mastoiditis. M. H. STUART. *J. Med. Ass. Georgia*, 1922, xi, 255.

The use of ear plugs in aviation. L. E. TEFPT and E. K. STARK. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 329.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

A new septal chisel. C. BARKER. *J. Am. M. Ass.*, 1922, lxxix, 216.

Naso-pharyngeal fibroids treated with radium; a case report. S. G. DABNEY. *Kentucky M. J.*, 1922, xx, 401.

Certain nose and throat conditions allied to dental problems. H. M. HAYS. *Eye, Ear, Nose & Throat Month.*, 1922, i, 252.

The involuntary nervous system of the nose, and the mechanism of some obscure nasal symptoms. L. HUBERT. *Laryngoscope*, 1922, xxxii, 403.

Sensitization in vaso-motor rhinitis. H. M. RICH. *Laryngoscope*, 1922, xxxii, 390.

The new treatment of empyema of the accessory sinuses. J. M. BARREJA Y DE VILCHES. *Siglo mèd.*, 1922, lxi, 191.

The histopathology and histogenesis of benign growths of the nose and accessory cavities. H. L. BAUM. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 371.

Sarcoma of the antrum. H. S. BROWNE. *J. Oklahoma State M. Ass.*, 1922, xv, 230.

Rhino-ophthalmological experiences with gunshot injuries of the facial portion of the skull. A. BRUECKNER and M. WEINBAECHTER. *Ztschr. f. Laryngol., Rhinol.*, 1922, x, 437, 449, and 1922, xi, 8. [386]

Nasal tuberculosis. W. B. CHAMBERLIN. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 423.

The treatment of tuberculosis of the nose. B. DEDEK. *Časop. lek. česk.*, 1922, lxi, 109.

Acute ethmoiditis with orbital abscess, with a case report. H. J. GIBBY. *Boston M. & S. J.*, 1922, cxcxcvii, 19. [386]

A typical operation for abscesses descending from the upper air passages and the base of the tongue. O. GLOGAU. *Laryngoscope*, 1922, xxxii, 329.

The cause, symptoms and diagnosis of nasal sinusitis in their relation to general practice. W. S. HUNT. *Canadian M. Ass. J.*, 1922, xii, 484.

Acute infections into the sebaceous glands and hair follicles of the nasal vestibule. L. M. HERS. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxi, 486.

Adenocarcinoma of the middle turbinate, anterior and ethmoidal two years after radical operation without recurrence. D. N. HENRI. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 343.

Variations of intranasal symptoms from frontal sinusitis. L. LECY. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxxi, 402.

Fatalities following operations upon the nose and throat not dependent upon anæsthesia—a study of three hundred and thirty-two lithera unsupported cases. H. W. LEON. *Ann. Otol., Rhinol. & Laryngol.*, 1922, xxi, 373.

Tumours of the nose. C. SCHWARTZ. *Schweiz. med. Wochenschr.*, 1922, li, 247.

A comparative study of ethmoidal and sphenoidal operations. J. J. SIMS. *J. Am. M. Ass.*, 1922, Italy, 203.

Intranasal injection of alcohol in the treatment of hyperplastic rhinitis and some of the nasal neurasms. G. J. STICK. *Illinois M. J.*, 1922, xlii, 72.

Chiasmata of the nasopharynx. W. STUCK. *Schweiz. med. Wochenschr.*, 1922, li, 243. [386]

Treatment of frontal sinusitis. W. F. von ZALTENAU. *Eye, Ear, Nose & Throat Monthl.*, 1922, i, 257.

Throat

Diseased tonsils. W. T. BURNER. *Med. Times*, 1922, i, 216.

The pathology and bacteriology of exfoliated tonsils, the effect of N-xy therapy upon the bacterial flora of tonsils. F. K. NEVILL. *California State J. M.*, 1922, xx, 117.

The present status of treatment of tuberculosis of the larynx. M. HAJEK. *Wien. med. Wochenschr.*, 1922, lxvi, 12.

A foreign body in the larynx—a case report. T. V. FREEMAN. *Chin. J. M.*, 1922, li, 207.

Laryngectomy for cancer of the larynx with modified technique and attempted formation of a skin-graft tube

in place of the larynx. R. H. GUTENHART. *Laryngoscope*, 1922, xxxii, 426. [387]

Laryngological observations on the surgical treatment of tumors of the larynx. GREEN. *Casop. lek. česl.*, 1922, lx, 200.

An effective method of treating peritonsillar abscess. J. M. HOFFMAN. *Am. J. Surg.*, 1922, xxxvi, 199.

Difficult removal of the canals and laryngitis hypoglossica. A. SCHULZ. *Deutsche Zeitsch. f. Chir.*, 1922, clxxvi, 28.

Cancer of the larynx: the operation of larynx fissure and its results in the intrinsic variety. S. THOMAS. *Lancet*, 1922, cccc, 162.

Another method of tonsillectomy. J. B. H. WARREN. *Eye, Ear, Nose & Throat Monthl.*, 1922, i, 100.

The use of the electro-galvanity in laryngeal tuberculosis. G. B. WOOD. *Surg., Gynec. & Obst.*, 1922, xxxii, 184.

Mouth

Is pyorrhea a local or constitutional disease? R. W. HARRIS. *Dental Cosmos*, 1922, lxi, 731.

Pathologic manifestations of the mouth: granulomata, cysts, necrosis. M. H. FREEMAN. *Dental Cosmos*, 1922, lxi, 764.

The value of dental examination in general medicine. B. S. GARDNER. *Ann. Clin. Med.*, 1922, i, 24.

The surgical management of serious local infection cases when caution is to be exercised and when surgical procedure is indicated. T. A. HARRIS. *Dental Cosmos*, 1922, lxi, 738.

The management of teeth during pregnancy. W. N. ROWLEY. *Bull. Lying-In Hosp.*, N. Y., 1922, xl, 82.

Squamous-cell epithelioma of the lip: its surgical indications. J. H. SHEPARD. *Surg., Gynec. & Obst.*, 1922, xxxv, 107.

Malignant melanoma of the gum. M. J. STEWART and J. PHILLIPS. *Lancet*, 1922, cccc, 12.

The technique of urano-staphylorrhaphy. V. VEAU and C. REVER. *J. de Chir.*, 1922, lx, 125. [387]

INTERNATIONAL ABSTRACT OF SURGERY

DECEMBER, 1922

ABSTRACTS OF CURRENT LITERATURE GENERAL SURGERY—SURGICAL TECHNIQUE

OPERATIVE SURGERY AND TECHNIQUE

Takahashi, N., and Miyata, R.: Free Skin Transplantation (Ueber die transplantation von freien Hautlappen). *Arch. f. klin. Chir.*, 1922, CXX, 170.

The authors set out to determine whether homoplastic free tissue transplantation is possible, since this question possesses practical as well as theoretical interest and is of great importance. However, they have been able only to confirm the finding already made by others that homoplastic skin transplantation fails in animals related by blood as well as in those not so allied, and also in human beings. On the other hand, almost constant success was obtained with autoplastic transplantation in man as well as in the rabbit.

In experiments to determine the vitality of epithelial cells, skin wrapped in gauze soaked in physiological salt solution and kept in a chamber at 7 degrees C. for eleven days successfully healed in. In the successful cases the authors were able to determine: (1) signs of degeneration of the skin, such as disappearance of the horny layer and the appearance of small areas of round-cell infiltration and vascular dilation in the corium, and (2), phenomena of regeneration.

For the failure of the homoplastic operations the formation of some substance possessing a deleterious effect on the skin is held responsible. As yet, its chemical composition has not been determined.

VALENTIN (Z)

Bissell, D.: Vomiting and Distention After Laparotomy Lessened by the Substitution of Rubber Envelop Pads for Gauze: the Influence of Ether, Morphine, and Rectal Therapy. *Surq. Gynec. & Obst.*, 1922, XXXV, 320.

Bissell analyzes very carefully 766 cases of intra-abdominal operations in an attempt to discover the differences, if any, in postoperative emesis and intestinal distention in cases in which rubber envelop pads were used and those in which gauze pads were

employed. In order to evaluate the causes of emesis other than factors arising from peritoneal trauma, he studied also 300 successive non-laparotomized cases which were etherized. His conclusions are as follows:

1. The length of etherization has no relationship to the frequency or days of occurrence of post-operative emesis.

2. The effect of morphine administered hypodermically after operation is, with respect to emesis, practically nil.

3. The dominating factor in the causation of emesis when the peritoneum of the intestines is not traumatized is ether, and the limit of its influence is twenty-four hours.

The operative technique in one group of laparotomized cases differed radically from the other only in the character of the abdominal pads used. The rubber envelop pad, employed in 400 cases, consists of an envelop of thin rubber and a pad of toweling. A tape which is sewed to the cloth and passed through holes in the envelop keeps the envelop closed and holds the pad in place. The use of the rubber envelop pads resulted in freedom from vomiting in practically the same percentage of laparotomized cases as in non-laparotomized cases. In the author's opinion his study demonstrates that the substitution of these pads for gauze pads doubles the chance of escaping vomiting, reduces two-days vomiting by one-third, reduces three-days vomiting by 60 per cent, and lessens distention by two-thirds.

The dominant factors in the causation of emesis in laparotomized cases are ether and trauma of the intestinal peritoneum. While the influence of the former continues for twenty-four hours, the influence of intestinal peritoneal trauma may persist for three days or more. Less vomiting, less distention, and less morphine show less trauma to the peritoneum.

It appears from the author's tables that neither the character nor the gravity of the operation necessarily influences postoperative emesis. In analyzing the influence of rectal therapy in the two groups of

cases he came to the conclusion that the rectal administration of solutions of salt, bicarbonate of soda, or glucose immediately before the termination of an abdominal section, does not prevent or modify post-

operative emesis and that the influence of rectal therapy in the form of drips is due to the stimulation of peristalsis which lessens intestinal distention.

S. J. SEGER, M.D.

SURGERY OF THE HEAD AND NECK

HEAD

Fischer, H.: Extirpation of One (Left) Adrenal Gland for the Cure of Epilepsy. *Ann. Surg.*, 1922, lxxvi, 176.

The author reviews the work done by Heinrich Fischer, who proved that the capacity of the body to react with convulsions is dependent on the amount of functionally active adrenal substance. The adrenals, and probably the whole chromaffin system, belong to the convulsive mechanism. Fischer's experiments have shown also that there is a peripheral component of the cramp mechanism which is joined to the central component in the musculature by means of the peripheral nerves. On the other hand there is a direct continuation between the cerebral sympathetic system and the adrenals by means of the sympathetic nerves. The cortex of the adrenals, as part of the chromaffin system, is derived directly from the sympathetic system. A complete cycle of the cramp mechanism is hereby formed.

The author reports a case of epilepsy of long standing in which he removed the left adrenal. Before the operation the patient had from ten to fifteen epileptic attacks every night. Although he has not been entirely cured, distinct improvement is noticeable. The attacks are less in frequency and intensity and there are intervals of complete freedom from convulsions.

H. W. FINK, M.D.

Blumberg: Irradiation of the Hypophysis in Hypophyseal Tumors and in Gynecological Diseases of Hypophyseal Origin (Ueber Hypophysenstrahlungen bei Hypophysentumoren und bei gynäkologischen Erkrankungen hypophysären Ursprungs). *München. med. Wochenschr.*, 1922, lxxix, 770.

The author reports four cases in which good results were obtained by irradiating the hypophysis with mesothorium. The first was a case of tumor of the hypophysis in which disturbances of vision and beginning atrophy of the optic nerve were already present in one eye, and the other eye was totally blind. In this case the trouble was brought to a permanent standstill by several series of irradiations of two hours' duration each. The three other cases were those of women with dysmenorrhea on a hypophyseal basis. In two of these, distinct improvement was obtained; in one, the irradiation was given for only two and a quarter hours in all, while in the other, eight irradiations of from one hour to one hour and a half each were necessary. In the third case the result was negative.

The treatment consisted in the application, close to the root of the nasopharynx, of a preparation of

mesothorium of about 50 mg. radium-bromide activity. This preparation was introduced with a sound and its radiation was filtered with 1 mm. of brass and a rubber finger. Its position was controlled by posterior rhinoscopy.

MAYER (Z.)

Mintz, W.: Brain Surgery in the Occipital Fossa (Hirnschirurgische Eingriffe in die Hinterhauptgruben). *Arch. f. klin. Chir.*, 1922, cxix, 814.

The author has performed twenty-six operations for conditions diminishing the space within the occipital fossa. Seven patients (25 per cent) were cured. Nineteen died sooner or later following the operation, the majority after the second stage. Tumors of the cerebellum appear to have a more unfavorable prognosis than cysts; the slow growth of cysts permits the establishment of a zone of defense. The reason for the poor results of operations is found in the numerous anatomical conditions in the occipital fossa which are unfavorable to healing, viz., a variety of tissues with different degrees of viability, tendency toward healing, and readiness to react; rigid walls; angles; niches; hemorrhages difficult to manage; and the fluid which constitutes an excellent culture medium and by pressure may burst open wounds which are closed. The following causes are given especial mention:

1. The injurious effect of anesthetics. Chloroform and intravenous hedonal narcosis are distinctly dangerous. Local anesthesia and a slight degree of narcosis produced by ether are sufficient.
2. Sepsis. To assure asepsis the second stage of an operation should not be performed until three or four weeks after the first, as previous to that time the desquamating scalp cannot be disinfected.
3. Hemorrhage. From the standpoint of loss of blood the osteoplastic procedure is to be preferred. Emissary hemorrhages, the tearing of a vein running from the plexus into the occipital bone, hemorrhages from veins running from the sinuses to the surface of the cerebellum, and from the vessels in the bed of the tumor and the paratumoral vessels are dangerous.
4. Pressure. The sudden release of pressure will usually lead to lessening of the headaches.
5. The fluid. In many cases there was an objectively demonstrable external hydrocephalus of intermittent character accompanied by pseudomeningitic symptoms of greater or less severity which set in: (1) as the result of the mechanical stimulation of the operation or the introduction of bacteria of low virulence, the quantity of fluid being normal; (2) when there was an increase of fluid before the

operation. (3) when the brain substance was destroyed mechanically by the removal of the tumor. (4) as the result of postoperative changes and irritation of a tumor not removed. Transition stages were noted between the stage of excited function and that of pressure on the brain. Puncture performed in time prevented the pressure on the brain from reaching the stage at which paralysis is produced. Hydrocephalus, otherwise not a dangerous condition, is a serious complication in surgery of the occipital fossa because it may break open the newly formed scar; this was the cause of meningitis of insidious onset in a number of cases.

6. The reaction of the medullary tissue. This cannot be overcome; early operation can only decrease it. The extrusion method, the forcing out of the tumor by internal pressure after the brain tissue has been cut down upon and its removal in a second stage, spares the brain tissue but adds to the severity of the first stage. STREIBLER (Z).

Collins, A. N.: Cerebellar Cyst. *J. Lancet*, 1922, n.s. vol. 135.

The author reports a case of cerebellar cyst in a child aged 13 years. The patient complained of failing vision, more or less constant headache, nausea, occasional vomiting, unsteadiness in gait, a tendency to fall, and increasing deafness. Three weeks previously he had been sent home from school because of inability to see the blackboard. He was not so bright and active as formerly.

The child was a well-developed boy. The eyes were prominent and there was nystagmus to the right. The pupils were dilated but reacted to light and accommodation. R.E.V., 3/10; L.E.V., 3/10. With a 4+ diopter lens the vision could be improved to 6/10 in each eye. The fundus examination of both eyes showed the outlines of the optic disk to be indistinct. There was a choked disk of about 1 mm., and the blood vessels were dilated and tortuous.

Conversational and whispered voice sounds were not heard in the right ear. The tuning fork was not heard by either air or bone conduction. In the left ear a low-pitched tuning fork was not heard and the sound of a high-pitched tuning fork was reduced.

There was ataxia, dizziness, tinnitus aurium, and loss of corneal reflexes on the right side, exaggeration of the reflexes, a positive Babinsky test, loss of strength of the right arm, and severe occipital headache. An acoustic tumor on the right side was suspected.

The patient was operated upon by the two-stage method. At the first operation an opening was made in the cranium in the right cerebellar region and the wound closed. At the second operation through the previously made wound, the cerebellum herniated into the operative field. A cerebellar cyst was found which extended from the left mastoid region to the midline. This cyst was thin walled and contained 3 oz. or more of fluid under great pressure. Parts of the cyst wall which could be caught up and

peeled off were removed. The cavity was drained and closed. Iodoform gauze was applied externally around the drain.

For a few days after the operation the patient was comfortable. The wound discharged fluid copiously. The drain was removed in two weeks. The fluid then diminished and the temperature (rectal) became suddenly elevated to 106 degrees F. With further discharge of fluid the temperature dropped. Cultures of the fluid were negative. Whenever drainage decreased the temperature became elevated. Movements of the limbs were ataxic. There was incontinence of feces, occasional vomiting, and cerebellar hernia. The patient became mentally dull, failed progressively, and died about two and one-half months after the operation. Autopsy was not permitted.

In reviewing this case and the literature the author states that tumors in the cerebellar region are reputed to have the highest mortality of all brain lesions (45 per cent). Those in the parietal region have a mortality of 41 per cent.

The author tabulates twenty-one cases of cerebellar cysts in children up to 16 years of age who were treated by operation. There were three times as many patients between the ages of 10 and 16 years. From the reported cases of the condition in children it appears that the operative mortality is low but it is possible that only the favorable cases have been reported. WALTER C. BURKET, M.D.

Highsmith, E. D.: Plastic Surgery of the Face. *Ann. Surg.*, 1922, lxxvi, 129.

The chief aim of plastic surgery of the face is to restore function and correct deformities. Scar tissue and trauma must be minimal.

Among the most common facial deformities are harelip and cleft palate. Harelip operations should be done early. After the operation the lip should be massaged to soften the scar. In the cases of infants the use of the pacifier is of value for this purpose.

Cleft palate should be operated upon before the child begins to talk.

In the reconstruction of the nose, an epithelial lining, a bone or cartilage framework, and a skin covering are the three essentials. The epithelial lining may be taken from the adjacent skin with a pedicle. Bone may be taken from the frontal region with the attached flap. Cartilage is probably best obtained from the ninth costal cartilage. It should be embedded in the flap about ten days prior to the operation. F. K. HANSEL, M.D.

Bockenheimer: Ankylosis of the Jaw and Its Treatment (Kieferankylosen und ihre Behandlung). *Deutsche med. Wochenschr.*, 1922, xlviii, 729.

Conservative treatment of bony ankylosis is of no value. The condition must be treated surgically. Numerous operative methods have been proposed to avoid injury to the facial and parotid nerves but none of them has been entirely satisfactory because of the wide variations in the course of these nerves.

A new method in which an incision is made behind the ear with division of the auditory canal close to its exit from the skull is not only free from the danger of injuring the nerves but permits, after forward deflection of the ear, wider exposure and resection of the articulation of the jaw.

A case is reported in which this operation was successfully performed on both sides. Narrowing of the cutaneous auditory canals has not occurred.

Rosa (Z).

Kuettner, H.: A Report on 266 Cases of Primary Carcinoma of the Mucosa of the Mouth (Bericht über 266 Fälle von primärem Carcinom der Mundschleimhaut). *Munchen med Wochenschr.*, 1919, 100, 110.

This report includes 135 carcinomata of the tongue, thirty-five of the floor of the mouth, fifteen of the buccal mucosa, twelve of the palate, and forty-nine of the tonsils. Histologically they were nearly all pavement-cell epithelial carcinomata showing more or less marked cornification, only two being adenomatous cancers and two unusual forms. Eighty-one per cent of the patients were males. Forty-three per cent were heavy smokers and 22 per cent—most exclusively—showed leukoplakia associated with the carcinoma. In 33 per cent chronic traumatic irritation due to carious teeth or the pressure of prostheses was regarded as the responsible factor. More than three-fourths of the patients had definite metastases in the lymph nodes.

The operation was developed into a standard technique and consisted of two parts: the most thorough extirpation of the lymph nodes in the neck, and the extirpation of the tumor, done in one or two stages according to the circumstances. As a result of the routine use of local anesthesia the mortality was reduced to 4.4 per cent. The cleaning out of the entire lymph node area of the neck was done through a crucial incision made from the chin to the sternum and transversely below the angle of the jaw and slightly arch-shaped between the sternocleidomastoids. The lymph nodes cleaned out were the submental, submaxillary, and deep cervical nodes on both sides up to the jugular vein and possibly up to the supraclavicular fossa; also both submaxillary salivary glands, the external maxillary artery being ligated. The double ligation of the lingual artery may be done easily at the same time, but in cases of advanced cancer and those of the tonsils unilateral or bilateral ligation of the external carotid artery between the lingual and superior thyroid arteries was done instead in order to exclude the collateral circulation through the inferior thyroid artery.

The second part of the operation, the extirpation of the tumor, was done immediately after the operation on the neck when the carcinoma could be removed from the mouth without operating on the bone or possibly by transverse splitting of the cheek. When there was involvement of the anterior floor of the mouth, the median sawing through of

the lower jaw was done according to the Sædøe-Kocher method. In well-advanced cases of cancer reaching far back and also for cancers of the tonsils and palate, the lateral sawing through of the jaw according to the von Langenbeck-von Bergmann technique with the cosmetic incision of Koenig offers the best approach. The suturing of the mucosa was done most carefully.

Postoperative complications were the cause of death in 33, 9 per cent of the cases. Nineteen per cent of the patients lived longer than three years and 13 per cent lived longer than five years. Most of the recurrences were local and 11 per cent were in the glands. If the cases without recurrence for more than three years are considered as probably healed, the permanent cures equaled 17.2 per cent in the cases of carcinoma of the tongue, 11.7 per cent in the cases of carcinoma of the floor of the mouth, and 7.7 per cent in the cases of carcinoma of the tonsils.

Up to the present time the results of roentgen irradiation have been very unfavorable. Treatment with radium seems to be more promising in this field. The early diagnosis made from biopsy should be followed by operation immediately if the results are to be improved. Carcinoma is not excluded by a positive Wassermann reaction, as syphilis, especially syphilitic smokers, are predisposed to all kinds of cancers of the mouth. The routine use of local anesthesia and thorough extirpation of the lymph glands in the neck are the great technical advances in the treatment of carcinoma of the mucous membrane of the mouth.

Bort (Z).

NECK

Neuber, E.: Villous Struma (Struma villosa). *Oral Surgery*, 1922, 20, 82.

The author reports the histories of ten cases of villous goiter treated by operation. The size of such goiters varies from that of a hazelnut to that of a man's head. The tumors are sometimes solid, sometimes cystic. Neuber's patients ranged in age from 16 to 72 years. The condition occurs with equal frequency in both sexes.

The basic principle of the histologic structure is the villus covered with a single layer of epithelial cells. In certain areas, however, there may be a number of layers because of proliferation of the epithelial elements. When the tumor grows by infiltration into the connective tissue or the tissue of the thyroid gland it forms compact epithelial casts in which cavity formation takes place. From the walls of these cavities the villi project.

Langhans classed the villous goiter with malignant epithelial tumors, but more recent observations do not confirm this theory as some of the villous tumors are wholly benign while others vary in their malignancy. Those which are mildly malignant are characterized by local recurrence, while those which are very malignant form metastases. Metastasis belongs to the rarer phenomena as in most cases

there is only infiltration of the surrounding tissues or local recurrence. The villous nature of the polyp can be easily recognized if a smooth section is cut from the excised portion. Floating of the villi in water makes it possible to diagnose the condition with the naked eye. The villous tumor grows slowly, its development requiring months or years.

The cause of the villous polyp is unknown. It

is highly probable that its origin is not to be found in a single factor. From the clinical standpoint, the villous character of the polyp is of very great importance. Increased vital energy of the epithelium in villous growths should arouse the suspicion of malignancy. Nodules and cysts of entirely innocent aspect must be thoroughly removed with their capsules.

* VON LÖNNER (Z).

SURGERY OF THE CHEST

CHEST WALL AND BREAST

Bevan, A. D.: Tumors of the Breast from the Standpoint of the General Practitioner and the General Surgeon. *Illinois M. J.*, 1922, xlii, 85.

The differentiation between a benign and a malignant tumor depends very largely upon whether the tumor is movable in the mammary gland tissue or adherent to the mammary gland tissue. A benign tumor is movable in the sense that when the mammary gland is held fixed with the thumb and finger the growth can be moved within the mammary gland tissue itself. This is not true of a malignant tumor or of chronic inflammatory processes in the breast.

A malignant tumor of the breast with a good prospect of permanent cure by operation is the tumor which is seen so early that few, if any, of the evidences of the old classical picture are present, the diagnosis resting alone upon the discovery of a neoplasm adherent in the mammary gland and limited to the primary focus, there being no palpable involvement of the axillary lymph nodes.

The author is in favor of opening a tumor of the breast and making the diagnosis from the gross pathology found. He recommends also making sections in doubtful cases and removing the breast later if necessary. There is no danger in doing this as cancer cells extend by a slow process of extension growth.

The operative procedure should be a block dissection under ether or gas oxygen anæsthesia with careful dissection of the axilla. Cases with extensive axillary involvement should be treated with radium or the X-ray.

The 50 per cent mortality of cancer of the breast is due to the cases which reach the surgeon late. With further education of the laity regarding tumors of the female breast this mortality should decrease.

H. A. MCKNIGHT, M.D.

TRACHEA AND LUNGS

Bogendoerfer, L.: Phrenicotomy in Bronchiectasis (*Zur Phrenicotomie bei Bronchiektase*). *Therap. d. Gegenwart*, 1922, lxxii, 205.

The production of unilateral paralysis of the diaphragm by phrenicotomy in cases of bronchiectasis, first recommended by Sturtz in 1911, has been little practised. More recent research concerning

the effects of phrenicotomy (Kirschner) has shown that destruction of the function of the phrenic nerve converts the corresponding half of the diaphragm from a tonic muscle to a passively moved membrane and causes a decrease in the size of the pleural cavity and cessation of motion of the lung, particularly those portions which border on the diaphragm. In the treatment of bronchiectasis such interference with the function of the phrenic nerve comes into consideration also when the usual treatment by pneumothorax is prevented by the presence of broad pleuritic adhesions.

After failure of the usual treatment in a case of bronchiectasis in the right lower lobe a portion of the phrenic nerve 2 cm. long was resected above the scalenus muscle. The result was satisfactory. The affected half of the diaphragm remained motionless during quiet respiration and higher than the normal half. There was distinct improvement in the subjective symptoms. Difficulty in breathing did not develop. Objectively there was a decided decrease in the amount of sputum and disappearance of the pathologic phenomena which were noted on auscultation.

Unilateral phrenicotomy is therefore recommended by the author for the treatment of bronchiectasis in the lowest portion of the lower lobe. According to Kroh, spontaneous reunion of the nerve ends occurs after four months and ultimately there is a complete return of the function of the diaphragm. When the freezing method is used regeneration requires six months (Trendelenburg).

HAUMANN (Z).

Graham, E. A.: A Consideration of the Surgical Treatment of Bronchiectasis. *South. M. J.*, 1922, xv, 639.

The treatment of bronchiectasis has always been unsatisfactory. Certain cases of recent origin respond to the comparatively simple procedure of artificial pneumothorax and are rendered free from symptoms. In some cases a foreign body is present and should be removed. Radical surgery is probably unwise until less radical measures have been tried. The most radical measure is lobectomy.

There are two principal methods of operating, one by an intercostal route and the other by preliminary resection of ribs. The former constitutes by far the most brilliant procedure and, when successful, causes the least deformity, but it is

more dangerous than the latter. The second method is the more laborious procedure, but safer as it can be done in any number of stages and practically insures against retraction of the bronchial stump into the mediastinum.

The second operation is described essentially as follows:

A crescentic incision is made with its convexity downward. It is begun at the level of the fifth rib about 2 in. from the vertebral column, carried across the eighth rib in the scapular line, and ended in the mammary line at the level of the sixth rib. The skin and fat are turned up and the latissimus dorsi is divided transversely to form part of the flap. Subperiosteal resection of the seventh, eighth, and ninth ribs is done from their angles to the anterior axillary line. The intercostal bundles are then ligated and removed. The flap is brought down and sutured in place without drainage.

At the second stage the flap is elevated and the pleura opened. The adhesions about the diseased lobe are separated. If the other lobe is not adherent to the pleura, the diseased lobe, after being separated from the adherent structures, is surrounded and walled off by gauze packing and the wound is closed without drainage. The gauze is removed gradually and the space may be dakinized until it is clean.

The amputation of the lobe may be carried out as soon as the patient is in good condition and the cavity is clean. Curved clamps are placed on the hilus and the lung is cut away distal to the clamps. Mass ligatures may be applied or the clamps left on to be removed in from five to seven days. One advantage in leaving the clamps in place is that the bronchial stump is firmly held so that it cannot possibly retract into the mediastinal space. The wound is not sutured, but the flap is allowed to fall into it. It should be irrigated carefully because a bronchial fistula is practically always present.

H. A. MCKNIGHT, M.D.

Hirschboeck, F. J.: Postoperative Massive Collapse of the Lungs. *Am. J. M. Sc.*, 1922, clxiv, 268.

Hirschboeck reports three cases of postoperative massive collapse of the lungs. In a review of the literature he calls attention to the experiments of Lichtheim who produced this condition by blocking the bronchi with laminaria plugs. The air in the alveoli was absorbed by the circulating blood and massive collapse followed. Hirschboeck believes that as massive collapse of the lungs is so often a sequel of diphtheritic involvement of the diaphragm, the lack of motility in the accessory muscles of respiration and the diaphragm favors plugging of the smaller bronchioles with mucus and absorption of the alveolar air by the circulating blood.

A differential diagnosis must be made between pneumonia, hypostatic congestion of the lung, embolus, infarct, pleuritis, pneumothorax, and massive congestion. The outstanding signs and symptoms of pulmonary collapse are retraction of the affected

side, if the condition is unilateral, and diaphragmatic and cardiac displacement. The general symptoms are less severe than those of pneumonia and embolism. Very marked dullness, an extreme increase in the breath sounds (not constant), scant expectoration, and comparative absence of constitutional signs and X-ray findings are also characteristic.

Hirschboeck concludes with the ambiguous statement that the prognosis is invariably good but bilateral cases or cases affecting more than one lobe are more apt to be fatal, particularly when the subject is debilitated. RALPH B. REEFMAN, M.D.

HEART AND VASCULAR SYSTEM

Nippe: A Bayonet Puncture Wound of the Heart (Bayonetstichverletzung des Herzens). *Ztschr. f. d. ges. gerichtl. Med.*, 1922, I, 368.

In the case of a man 30 years of age who was killed by a puncture wound of the heart due to a bayonet the autopsy performed four hours after death showed the contracting effect of cardiac rigor mortis with contraction of the right ventricle. This case is of medicolegal importance as it was possible to prove by the testimony of reliable witnesses that the patient whose heart was punctured transversely still had the power of bending down to lift a heavy board weighing several kilograms and throwing it at his assailant a distance of 5 meters.

SCHENK (Z).

PHARYNX AND OESOPHAGUS

Buchmann, E.: A Contribution to the Differential Diagnosis of Retropharyngeal Tumors (Beitrag zur Differentialdiagnose der retropharyngealen Geschwulste). *Schweiz. med. Wchnschr.*, 1922, lu, 492.

An interesting case of retropharyngeal sarcoma is reported. The first symptom was difficulty in swallowing. A smooth, rounded prominence involving the entire pharynx and covering the entrance to the larynx was visible on the posterior pharyngeal wall. The pharyngeal mucosa was red, but the larynx was normal. The tumor was quite firm, tense, elastic, non-fluctuating, and not painful. There was no radiating pain toward the ear or the back of the head, no widening of the veins of the neck due to pressure upon the internal jugular vein, and no disturbance of the vagus or the sympathetic nerves.

Biopsy revealed a spindle-cell sarcoma. Deep roentgen-ray treatment was without effect. Death resulted from cardiac paralysis. Autopsy revealed a secondary sarcoma originating in a retrovisceral struma. In contrast to the usual findings in cases of malignant struma, no metastases were demonstrable.

The author discusses also other diseases of the posterior pharyngeal wall, especially the varieties of tumor found in that region. DERSECKER (Z).

Oppikofer, E.: Forty-One Foreign Bodies in the Oesophagus Diagnosed and Removed with the Aid of Oesophagoscopy (41 Fremdkörper der Speiseröhren diagnostiziert und entfernt mit Hilfe der Oesophagoskopie). *Schweiz. med. Wchnsch.*, 1922, li, 519.

In all of the cases reported the foreign body was removed successfully; there were no deaths. Six of the patients had also a stenosis due to erosion. In six cases the foreign bodies were dental prostheses, four of which became loosened during the night and two by trauma. The foreign body lay between the mouth of the oesophagus and the bifurcation of the trachea in forty-one cases and deeper in only two.

In the cases of children the foreign body was usually a toy (coin or tin whistle), while in the cases of adults they were bones, dental plates, or fishbones. Not only pointed and irregularly shaped foreign bodies, but also smooth objects may lead to perforation and bleeding from erosion due to pressure. One patient was first treated after six years, at which time the foreign body (coin) first caused perforation and the formation of a peri-oesophageal abscess. In another case a trouser button was lodged in the oesophagus for six weeks. The rest of the patients were treated after a few hours (twenty-four) or a few days (fifteen).

The statements of the patients were usually found reliable and the localization was fairly accurate. In some cases the foreign body may have left the oesophagus, but when this has occurred the symptoms are less severe.

The foreign body could never be felt by palpation, but when the object was pointed palpation frequently produced intense pain. Laryngoscopy frequently showed submucous hæmorrhages indicating that the foreign body had forced its way through. Visualization of the hypopharynx may be facilitated by drawing the larynx forward with the Siebenmann laryngeal hook. In the cases of children, suspension laryngoscopy has been found to render excellent service.

A pathognomonic sign of the presence of a foreign body, especially when it is located high in the oesophagus, is a large quantity of air-containing mucus in the pyriform sinus, similar to that regularly found in pharyngo-oesophageal pulsion diverticula. Roentgenography is also of value as foreign bodies not producing shadows can be made visible by the administration of a barium suspension. When this is done, however, the foreign body is rendered less distinctly visible in the subsequent extraction.

The use of blind extraction devices (fishbone catcher) or the stomach tube should be entirely abandoned because of the danger of perforation. Occasionally a foreign body glides farther down into the stomach as the result of the dilation of the oesophagus by the oesophagoscope, an occurrence which is very desirable. The extraction of a foreign body under the fluoroscope is uncertain and dangerous.

DEUS (Z).

Koenig, F.: An Operation for Diverticulum of the Oesophagus (Zur Operation des Oesophagus-divertikels). *Deutsche med. Wchnsch.*, 1922, xlviii, 719.

Koenig discusses the various operations for diverticulum of the oesophagus and states that all methods of suturing and extirpation may be followed by complications such as fistula formation and pneumonia. Primary excision and suture of the oesophagus is attended with a mortality of 10 per cent. The author has therefore followed a different course, which he calls "diverticulo-fixation." The diverticulum is exposed down to its base, expressed, and drawn upward under the omohyoid muscle, and fixed to the periosteum of the hyoid bone. Two cases are reported in which this method was used with excellent results. The advantages of the procedure are that the patient may be fed immediately after the operation, a factor of particular importance in cases of emaciation, and that the formation of a fistula is avoided. Whether the condition will recur or not is not yet known.

NORDMANN (Z).

Allen, D. S.: Experimental Reconstruction of the Oesophagus with Autogenous Fascia Lata Transplants. *Ann. Surg.*, 1922, lxxvi, 157.

In an experimental study on dogs it has been found possible to reconstruct portions of the entire circumference of the oesophagus with fascia lata transplants. One of the chief obstacles to be overcome in work on the oesophagus is infection because of the fact that the tube traverses the mediastinum. The technique in operations upon the oesophagus must include rigid asepsis embracing the principles of "no hand touch" surgery. Even the suture material must be handled with forceps, and the needles threaded with instruments. Fascia seems to be the tissue of choice or reconstruction. Fine catgut should be used for suture material rather than silk or linen.

The best results were obtained by performing a two-stage operation on the cervical portion of the oesophagus. At the first operation two tubes of fascia were placed around the entire circumference of the oesophagus to form an inner and an outer tube. The inner tube was intended to serve only as a temporary structure to prevent that portion of the oesophagus from becoming adherent to the outer tube which was to be substituted for the resected portion of the oesophagus. At the second operation the outer fascial tube was split longitudinally over the portion of oesophagus to be removed along with its inner adherent tube of fascia. Stenosis of the oesophagus invariably occurred and was attributed to the small amount of fascia available in the dog. Leakage of contents was prevented by the two-stage operation.

Experiments in which intrathoracic resection of the oesophagus was performed were uniformly fatal because of infection and leakage.

H. W. FINK, M.D.

SURGERY OF THE ABDOMEN

ABDOMINAL WALL AND PERITONEUM

Stokes, A. F.: Strangulated Right Inguinal Hernia Containing the Stomach and Transverse Colon. *Med. J. Australia*, 1927, ii, 183.

The patient, a weak-minded deaf mute of 42 years, a chronic asthmatic, and a very thin man of poor physical development, had had an inguinal hernia on the right side since childhood and had always suffered from indigestion. He had never worn a truss. At times the hernia became very difficult to reduce.

Recently the hernia reached the size of a fully distended bladder, became painful, and on two successive days could not be reduced. Attempts at reduction under chloroform anesthesia also failed. The sac was semi-transparent.

At operation an incision was made over the neck of the sac from just above the internal ring downward for 10 cm. The pillars of the external ring were divided and the tissues separated down to the sac. When the sac was opened it was found to contain the larger portion of the stomach, the transverse colon, and a portion of omentum which was adherent to the base of the sac. A strand of omentum, the only strangulated tissue, was tied off. The contents of the sac were easily returned to the abdominal cavity. A modified Bassini operation was done. The stump of the sac was sutured upward and outward behind the internal oblique muscle.

Seven days after the operation the lower limit of the stomach was just above the pubis. One month later the stomach was in its normal position in the epigastrium.

The patient made a complete recovery, and his asthmatic condition was improved.

WALTER C. BURKE, M.D.

Neuffer, H.: A Modification of the Bassini-Hackenbruch Operation for Inguinal Hernia (Ueber eine Modifikation der Leistenbruchoperation nach Bassini-Hackenbruch). *Zentralbl. f. Chir.*, 1927, xlix, 169.

The author proposes a slight modification of the Bassini-Hackenbruch operation for inguinal hernia by means of which the hernial opening is closed more surely with maintenance of a newly formed inguinal canal.

After the median border of the aponeurosis of the external oblique muscle has been sutured to Poupart's ligament, a triangular flap is cut from the lateral leaf of the aponeurosis with its base at Poupart's ligament, drawn over the hernial orifice and under the displaced vas deferens, and then sutured to the aponeurosis of the external oblique muscle (duplication of the aponeurosis). The part of the lateral aponeurotic flap remaining is used for the formation of a short oblique inguinal canal in the anterior abdominal wall.

DECKS (Z.)

GASTRO-INTESTINAL TRACT

Schulte, F.: Cystoid Pneumatosis of the Intestines in Man (Ueber Pneumatosis cystoides intestinalis hominis). *Arch. f. Klin. Chir.*, 1927, cxx, 158.

The author reports the case of a farmer, 36 years old, who suffered with gastric symptoms for three years. As these increased continuously, and as finally ileus developed, the patient was operated upon. Numerous firm adhesions between the lower surface of the liver, the hepatic flexure of the colon, and the pylorus were discovered. In the search for the small intestine a lower coil of the ileum was found to be covered with numerous, lentil-sized light cysts from which air escaped on puncture. The serosa of the rest of the small intestine showed single, yellowish-white stipplings. The coil of the small intestine covered with cysts was resected for a distance of 20 cm. The patient died from pneumonia.

The peritoneum of the resected portion of gut was thickened, non-transparent, and nodular. In one area there were knotty formations on both sides which were covered by large and small air-filled cysts. A transverse section showed that the cysts extended to the muscularis. In certain spots the mucosa and submucosa also exhibited small cysts. The largest cysts were the size of a cherry. The cysts were lined with a single layer of flat cells. In some places there were also leucocytic infiltrations, lymphocytes, polynuclear cells, and large giant cells.

In connection with the description of this case the author discusses this rare disease which Hahn described first in 1890.

Up to the present time seventy-four cases have been reported in the literature. The pneumatosis does not occur alone, but usually follows chronic intestinal diseases, gastric or duodenal ulcer, intestinal tuberculosis, appendicitis, or cardiac defects with secondary congestive catarrh. It develops most frequently in the lower ileum, the colon, stomach, and mesentery. The nature of the gases contained in the cysts has not yet been definitely determined. There is no agreement regarding the cause of the gas formation. The mechanical and bacterial theories are opposed to each other; the bacterial theory is the more probable as bacteria are frequently found in the cysts. These are anaerobic organisms which penetrate into the intestinal wall from the mucosa by way of the lymph channels.

The syndrome of pneumatosis is not uniform, but is characterized chiefly by gastric and intestinal stenosis. Therapeutically, resection of the diseased part with entero-anastomosis comes up for consideration. It is very probable that in some instances the cysts heal spontaneously; this theory would explain the small light cicatrices and nodules present on the serosa.

The article is supplemented by an extensive bibliography.

VON TARNOW (Z.)

Judd, E. S.: Excision of Ulcer of the Duodenum. *J. Amer. Med. Ass.* 1921, 83: 381.

The immediate and ultimate results of gastro-enterostomy performed for ulcer of the duodenum are very satisfactory. Several considerations are essential to these good results: first, the operation must be decided on after the ulcer has been demonstrated; second, the mechanical rearrangement of the stomach and intestine and the technique for joining the two must follow the plans made by surgeons with the widest experience; third, any co-existing foci of infection which might later lead to recurrence of the duodenal ulcer must be removed at the time of, or very soon after, the operation; and fourth, certain regulations of diet following the gastro-enterostomy must be prescribed.

Gastro-enterostomy does more than effect symptomatic relief. That it causes a definite change in the ulcer itself is certain, but whether or not all ulcers of the duodenum heal after gastro-enterostomy is still an open question. The return of hemorrhage, even several years after the operation, in cases in which an ulcer of the duodenum has caused severe bleeding, would seem to indicate that occasionally ulcers do not heal completely as a result of this operation.

Careful macroscopic and microscopic studies of the tissues have proved that inflammatory lesions of the duodenum are of two distinct types: the true ulcer and the duodenitis type of lesion which is more definitely inflammatory. The second type is not a healed true ulcer but a distinct lesion. In the first type there is definite congestion and stippling of the peritoneal coat, and the induration is usually rather extensive so that the lesion can be palpated and recognized as an ulcer with a crater. The second type is more markedly congested and stippled than the true ulcer; usually there is very little, if any, induration in the tissues. In many cases palpation of this lesion does not differ from palpation of the normal duodenum. If it were not producing symptoms the condition might be called a healed ulcer. Histologically it is similar to the submucous ulcer sometimes found in the urinary bladder; clinically there is little difference between the two types and their designation has no bearing on the diagnosis or treatment, though it may afford suggestions with regard to the etiology and is of interest from the pathologic standpoint. It has recently been demonstrated, contrary to our former opinion, that very severe hemorrhages may occur in cases of duodenitis.

In view of the good results obtained it seems best to continue to treat duodenal ulcer by means of gastro-enterostomy, giving care to the selection of cases and the performance of the operation. Pyloric occlusion, as a preliminary to gastro-enterostomy, has been practically abandoned as an unnecessary procedure.

In certain cases, however, excision of the ulcer seems preferable to gastro-enterostomy, and to this group of cases particular attention is given in

this article. Although the author has performed several different types of plastic operations on the pylorus, in the cases in this group operation was not performed on the pylorus or stomach. Excision of the ulcer, if it can be performed readily, is preferable to gastro-enterostomy in the following instances: when the entire ulcer can be excised and the duodenal lumen maintained; when the ulcer is of the type that bleeds during an attack; when localized pain is one of the chief symptoms and dyspepsia is slight or absent; when the gastric acids are not high; and especially when the patient has a tendency to neurasthenia. The excision of the duodenal ulcer or ulcers and the reconstruction of the duodenum are accomplished as simply as possible. The operation is based on the belief that the lesion is the cause of the symptoms and that its removal will be all that is necessary for complete relief.

The author does not make a plea for excision of the ulcer. On the contrary, he is convinced that the operation has its limitations and that it should not be attempted unless its technical steps can be performed satisfactorily. However, in selected cases quite as good results will be obtained by this means as could be secured by any form of pyloroplasty or by gastro-enterostomy and with a little less risk to the patient and the preservation of the normal anatomical and physiological relationship of the stomach, duodenum, and jejunum. The incision into the duodenum is made transversely on a line parallel with the ring fibers of the pylorus. The upper transverse incision is usually placed just below the pyloric muscle, and the lower one far enough below the ulcerated area to pass through good tissue. After the ulcerated area has been removed the entire surface of the mucous membrane of the duodenum and the pyloric end of the stomach are exposed for inspection.

In some of the cases of multiple ulcers it has seemed best to cauterize and suture over the deep ulcers and finish with a gastro-enterostomy. In most cases, however, the author is able to destroy all of the ulcers with preservation of a good duodenum. After the deep ulcers have been sutured over, the opening on the anterior surface is closed with three layers of sutures, the pyloric end of the stomach being thus sutured to the anterior surface of the duodenum. The entire duodenal cap is destroyed, so that a roentgenogram made after the operation reveals much the same deformity as that produced by the ulcer, a point which should be borne in mind in the interpretation of postoperative roentgen-ray findings.

This operation has been performed in 141 cases in the Mayo Clinic with satisfactory results; the immediate results are very gratifying, and the convalescence is easier than that following operation on the stomach. In most of the cases the functional result was good and there was a marked reduction in acid.

Finsterer, Nowak, and Roeder have reported similar operations with good results.

Strauss, A. A.: The Surgical Treatment of Carcinoma of the Colon with a New Method of Making the Operative Field Extraperitoneal by Means of the Omentum. *Surg. Clin. N. Am.*, 1927, 11, 843.

The prognosis of carcinoma of the colon is more favorable than that of carcinoma elsewhere because a radical operation may result in a cure or give the patient a large number of years before the formation of metastases. This is due to the fact that the neoplasm may be discovered early by means of the X-ray, the growth of a colonic carcinoma is comparatively slow, and the majority of cancers of the colon are of the scirrhous type which reaches the lymphatics comparatively late.

Technical difficulties of surgery of the colon as compared with surgery of the small intestine are due chiefly to the presence of colon bacilli and the inflammatory process which is always associated with carcinoma.

Of the earlier operations the three-stage Mikulicz procedure was devised to do away with peritoneal infection. The objection to this method is that the bringing down of the bowel prevents the most radical removal of the carcinomatous area and the adjacent colon, lymph vessels, and glands. In the author's opinion the ideal surgical procedure is a method by which the cancer and its neighboring tissue can be thoroughly and completely removed and the continuity of the bowel restored by end-to-end anastomosis. Leakage at the line of union can be prevented by applying the free edge of the attached omentum around the colon in such a way as to make that part of the colon extraperitoneal.

The case is reported of a 52-year-old man with a definite large mass which could be felt through the rectum. The X-ray proved the growth to be a carcinoma of the lower sigmoid and upper rectum. The symptoms consisted of severe cramps and pain during bowel movements, the passage of a slight amount of blood and mucus, and a loss of 15 lb. in weight.

When the peritoneum was opened a freely movable carcinoma involving the upper rectum and lower sigmoid and about the size of a man's fist made its appearance. There was no glandular involvement. The mesenteric blades on each side of the rectum and sigmoid were caught with clamps and divided. In this manner the entire portion of the rectum clear down to the external sphincter was freed by dull finger dissection without any difficulty.

There was no bleeding. Intestinal clamps were then applied above and below the carcinomatous mass, a pursestring suture of silk was placed about 2 in. above the first clamp on the sigmoid side, and a second pursestring suture below the second clamp on the rectal side. The bowel was then divided between the sutures and the clamps cut away by means of an electric cautery. The sigmoid portion was freed by dividing some of its mesenteric attach-

ments and the outer blade of the parietal peritoneum so as to make it quite movable. The sphincter of the rectum was stretched, a rubber catheter passed up through the rectum to the point of the suture, a ligature placed through the bowel and catheter, and the entire portion of rectum everted through the anus by traction on the catheter. A catheter was then attached to the sigmoid portion of the divided bowel and pulled through along the course of the rectum and through the everted bowel. The mesenteric vessels were ligated and sutured, the entire peritoneal surface closed around the drawn-through sigmoid, and the abdomen closed. The everted rectum was amputated at the level of the anus and an end-to-end anastomosis with interrupted sutures made with the cut end of the sigmoid. The bowel was then pushed up and fixed in position with a small amount of gauze.

The entire surgical procedure was extraperitoneal. In eight to ten days there was a slight amount of sloughing from the region of the anastomosis, but in three weeks the rectum showed a well-formed union. This type of operation is more successful in the female than in the male.

A second case reported was that of a woman 48 years old who had had symptoms of acute obstruction two and a half months previously, for which a temporary cecostomy was done.

The carcinoma was located in the lower descending colon and the upper sigmoid. A left rectus incision was made from above the umbilicus to the inguinal region. When the peritoneum was opened a very freely movable mass in the upper sigmoid was seen. By splitting the outer blade of the mesocolon the tumor was lifted out through the abdomen.

Two intestinal clamps were then applied 3 in. above and 2 in. below the tumor, and the bowel was divided between the clamps by means of an electric cautery. The mesenteric vessels were caught and the entire mass was dissected away, the blood vessels being ligated as before. An end-to-end anastomosis was then made. The first suture, a through-and-through interrupted suture, was placed nearest the mesentery and tied. The other two were mattress sutures. Three more sutures were inserted, one at each side and one above. These were through-and-through sutures which were held but left untied. The next step was a simple over-and-over suture going through all the coats, mucosa, muscularis, and peritoneum.

The great omentum was divided between ligatures on the right side near the pyloric end of the stomach to allow it to swing freely over the field of operation. It was then sutured around the entire peritoneum and the incisional wound so that it covered the entire colon and practically shut off the general abdominal cavity. Besides preventing leakage and adhesions it also afforded a new collateral circulation as its blood vessels penetrated and became anastomosed with those in the bowel wall. The abdomen was then closed.

DAN MEYER, M.D.

Delore, X., and Devaux, A.: The Surgical Treatment of Pyostercoral Fistulae (Conduite du traitement chirurgical dans les fistules pyostercorales). *Lyon chirurg.*, 1922, xlix, 285.

The authors discuss cases reported in recent literature in which pyostercoral fistula in healthy intestinal loops were treated by the indirect method of intestinal exclusion followed by secondary resection of the excluded loop. Frequently such operative measures have been followed by death or have proved inefficacious.

Bilateral exclusion is a grave source of peril (peritonitis), and in many cases may complicate the subsequent resection.

In the authors' opinion the operative treatment of pyostercoral fistula should be carried out by the direct method, i.e., cleansing drainage of the pyogenic cavity until it has become dry and the fistula has reached the clear stage followed by enterectomy or lateral enterorrhaphy.

The authors report nine cases treated by their method with excellent results. W. A. BRENNAN.

De Aragon, E. R.: Incipient Endothelioma of the Cæcum Simulating Appendicitis (Endoteloma incipiente del ciego simulando una apendicitis). *Arch. d. Hosp. Municipal de la Habana*, 1922, i, 141.

The author reports the case of a man aged 40 years whose condition was diagnosed as appendicitis. When the abdomen was opened the appendix appeared normal but a constricting band was found on the cæcum about two fingerbreadths from the ileocaecal valve. To the latter a loop of colon was adherent. The cæcum and part of the ascending colon were removed and the continuity of the intestine was restored by side-to-side anastomosis of the ileum to the transverse colon.

On examination of the sectioned part of the tract a thorn was found in the lumen of the cæcum surrounded by a zone of induration. The patient made a good recovery.

Histologic examination of the lesion led to a diagnosis of endothelioma. The thorn had been swallowed ten years previously. The symptoms observed since then consisted of intense gastralgia while the foreign body remained in the stomach, and colic and peri-umbilical pain suggesting appendicitis when it passed to the cæcum. W. A. BRENNAN.

Whiteford, C. H.: The Chronic Appendix. *Practitioner*, 1922, cix, 155.

The author believes that the diagnosis of chronic inflammation of the appendix as a condition requiring operation should be abandoned. He maintains that the enormous number of abdominal ailments now diagnosed as chronic appendicitis are chiefly conditions of varying causation for which the appendix is not responsible.

Among such conditions he mentions the case in which the appendix shows only microscopic pathology or only a developmental anomaly, the case in which the symptoms are due to disease in an organ other

than the appendix, the case of abdominal pain in a neurasthenic or tabetic or subject of enterospasm, and the case of abdominal pain associated with viceroposis. He believes that if these classes of cases are removed from the category of chronic appendicitis the latter type of case will be practically non-existent.

Whiteford is convinced that after the removal of the appendix in a case diagnosed as chronic appendicitis the symptoms persist or may even become more severe. The partial temporary relief obtained in a few cases he believes is due to the psychic effect of the operation. The statement is often made that removal of the chronic appendix does no harm. Removal of the appendix itself may be innocuous, but the operation for its removal is a frequent cause of trouble, both immediate and remote.

In Whiteford's opinion the chronic appendix theory produces laxity in diagnosis and because the operation is done on such a diagnosis the incision is made so small that thorough examination of the abdominal contents is a mechanical impossibility. Moreover, because of its failure to cure and because of its after-effects the operation for chronic appendicitis is producing doubt in the minds of laymen regarding the necessity for operation in acute appendicitis and mistrust of the integrity of the surgeon. He concludes that the chronic appendicitis theory, judged by the ability of the operation for the removal of the appendix to overcome the symptoms, is found wanting.

O. S. PROCTOR, M.D.

Sudeck, P.: An Operation for the Correction of Prolapse of the Rectum by Removing the Rectum from the Sacral Fossa (Rectumprolapsoperation durch Auslösung des Rectums aus der Excavatio sacralis). *Zentralbl. f. Chir.*, 1922, xlix, 698.

The operation consists of the separation of the pelvic colon from the sacral fossa, followed by complete stretching of the ampulla and displacement of the pelvic colon from the lesser pelvis into the abdominal cavity. The fixation is accomplished by: (1) fixing the ampulla at the promontory; (2) lifting the cul-de-sac of Douglas and fixing the pelvic colon to the peritoneum by suture; and (3) fixing the ampulla to the sacrum by means of adhesions. Following resection of the coccyx the sacral fossa is drained.

The author has operated successfully on three cases by this technique. DENCKS (Z).

Boas, J.: The Treatment of Hæmorrhoids by Injection (Ueber die Injektionsbehandlung der Hæmorrhoiden). *Med. Klin.*, 1922, xviii, 753.

During the past six years the author has treated 130 cases of hæmorrhoids by injections of 96 per cent alcohol. This has proved an excellent method of radical treatment, seldom failing to effect a cure. A recurrence developed in only six cases. In most instances the method brought about a cure without

complications within eight or ten days, the picture is that of septic thrombosis.

The method is used chiefly for internal (intra-rectal) piles, being employed for intra-anal piles only when they are soft and thin-walled. Internal piles must be brought outside of the anus so that the operator can ascertain their number and size and determine their limits in relation to the mucous membrane. This is best done with Bier's sutural clasp which, under local anesthesia, may be left in position until the piles do not recede after their removal.

There must be no trace of alcohol on the needle as otherwise necrosis and suppuration will occur in the thin wall of the vein. The amount of alcohol injected should be as small as possible—for large piles, 0.3 to 1.0 c. cm. All the piles are treated at one time. Subsequent pain is rare. From one to two hours after the injection many patients complain of a feeling of pressure in the rectum. This is due to intense swelling of the piles which must be reduced as carefully and as quickly as possible after the injection. If the piles remain in the anal rim they often become gangrenous, a condition which hinders healing and causes pain. Even when they are situated just above the anus, it is not always possible to obtain an aseptic thrombosis. Apparently the piles are easily infected from the outside, then becoming gangrenous.

The patient must remain in bed from four to five days, until the first bowel movement is obtained by the aid of mineral water; this is usually quite painless. The injection must not be given as ambulatory treatment for under such conditions embolism may result.

Absolute indications for the radical removal of hemorrhoids by operation or injection are piles which continue to prolapse, symptoms of strangulation, and continuous hemorrhage even though slight. Injection is as successful as operation. In addition, it possesses the advantage of simplicity and is less apt to be followed by complications in the after-treatment. Paresis and stenosis of the sphincter, frequent serious sequelæ of radical methods of operation, cannot follow injection.

TROMP (Z).

LIVER, GALL-BLADDER, PANCREAS, AND SPLEEN

Giordano, D.: Enucleation of an Adenoma of the Liver (*Enucleation di un adenoma del fegato*). *Riforma med.*, 1933, XXXV, 193.

Tumors in the body of the liver are usually inoperable. The case reported by Giordano was that of a man 56 years old. Examination revealed a growth to the left of the median line which was evidently connected with the liver. The X-ray findings corresponded with the palpatory findings. At operation the stomach and gallbladder were found normal but the left lobe of the liver showed a smooth, elastic lump with a thin hepatic paren-

chyma which was lighter in color than the rest of the organ. Exploratory puncture drew only blood. A breach was made between the hepatic parenchyma and the tumor and the latter gradually freed with the fingers.

The tumor occupied the entire thickness of the hepatic lobe and toward its upper pole communicated with the parenchyma by a large vessel. The latter was ligated and sectioned. The cavity left on removal of the growth was closed by approximating the edges with catgut sutures. The sutures held well as the edges of the parenchyma bordering the tumor were thickened. A gauze drain issuing through the upper angle of the wound was left in for four days, after which time there was no loss of bile. The tumor was encapsulated and the size of a fist. The postoperative course was excellent and the patient left the hospital two months after the operation. Examination showed the growth to be an adenoma.

W. A. BRENNAN.

Tsujimura: Ascariasis of the Biliary Passages (*Ueber die Ascariasis der Gallenwege*). *Deutsche Zeits. f. Chir.*, 1932, CLXXI, 398.

Tsujimura reports thirty-three cases in which ascariides were discovered in the biliary passages at operation. In eight cases there were no stones. The clinical symptoms produced by the worms were those of cholelithiasis. The attacks of pain were caused by the penetration of the worms into the papilla of Vater. Icterus may be absent when the duration of the biliary stasis is not sufficient for its development during the passage of the worm through the papilla of the duodenum. In many cases there is vomiting, and in a few, ascariides are expelled in the vomitus.

An ascaris placed in bile obtained aseptically and kept at body temperature lived for eight days (the bile undergoing putrefaction) and for three additional days in sodium chloride solution. Another ascaris lived for eleven days in ascitic fluid containing bile.

The treatment of ascariasis of the biliary passages is surgical. In most cases cystostomy is sufficient as the gall-bladder is usually changed only a little or not at all. Of the thirty-three cases reported, thirty-one were taken from the literature and two from the surgical service of Aryama.

DENCKS (Z).

Kauert, W.: Obstruction of the Common Bile Duct by Ascariides (*Cholelithiasisverwechslung durch Ascariiden*). *Beitr. z. Klin. Chir.*, 1932, CXXVI, 281.

A case is reported in which ascariides were found on examination of the stools and were expelled following the administration of a vermifuge. Because of associated severe attacks of pain in the region of the stomach and slight icterus, a diagnosis of cholangitis due to ascariides was made. At operation a hard mass was found in the common bile duct. This was considered to be due to the ascariides and removed. With the aid of a fine gall-stone for-

eighty ten ascarides were removed from the common bile duct and the hepatic duct. The gall bladder and the cystic duct contained no worms. From a drain which was introduced into the common bile duct an ascaris appeared on the second day after the operation. On the fourteenth day the patient was discharged from the hospital because of the absence of symptoms but the ova of the ascarides were still demonstrable in the stools.

After one year there was a recurrence and the patient was re-admitted with the same symptoms as before. There were numerous ova of ascarides in the stool. A laparotomy revealed eighteen worms in the common bile duct, which was as thick as a lead pencil, hard, and cicatricial, and also in the adjacent, markedly dilated hepatic duct. Removal of the ascarides was again followed by recovery, but later the patient was given a course of worm treatment consisting of 5 c.cm. of palmitic acid-thymol-ester administered twice daily for two days and then three times daily for three days, according to the advice of Ellinger.

The important features in the diagnosis were, first of all, the extremely severe, boring pains in the epigastrium which seemed to exceed the pains of cholelithiasis in their severity and never occurred at the site of the gall-bladder, being always referred to the epigastrium. As these were apparently markedly increased after the administration of a vermifuge, it appears that the worms entered the biliary passages to avoid the chyme which is injurious to them.

BODE (Z).

McKendrick, J. S.: Notes on Splenomegaly and Splenectomy. *Glasgow M. J.*, 1922, N.S. XVI, 101.

This article reviews the anatomy, physiology, and pathology of the spleen, and the conditions in which the spleen is enlarged.

Splenic anemia is a disease in which the greatest benefit results from splenectomy. Radium may be applied to diminish the size of the spleen prior to the operation. Splenectomy should be performed early before the patient has become very anæmic and has Banti's disease.

The mortality of splenectomy has declined from 75 per cent in the period from 1866 to 1875 to 12.3 per cent as given by the latest statistics of the Mayos.

O. S. PROCTOR, M.D.

Fisher, D.: Splenectomy in Banti's Disease, Third Stage; with Report of Two Cases, One with a Positive Wassermann Due to Jaundice. *Surg., Gynec. & Obs.*, 1922, XXXV, 171.

Splenectomy as a therapeutic procedure is now accepted, and a sufficient number of cases has been reported to give it a distinct clinical basis of value.

In 249 cases reported from the Mayo Clinic the mortality was 10 per cent. These cases represented splenomegaly primary and secondary to known and unknown conditions.

The reports of splenectomy for Banti's disease are comparatively few. As near as the author could

estimate, the mortality was 26.5 per cent. Fifty-five per cent of the patients who survived the operation lived and remained in good health for more than fifteen months. As Banti's disease is always fatal if untreated, the operative mortality must be considered low.

The author reports two cases in detail. The first was that of a man 24 years of age whose illness was of three years' duration. A mass was first noticed in the left upper quadrant of the abdomen and later in the right upper quadrant. There had been several attacks of hæmatemesis. The abdomen was tapped and a gallon of fluid removed. The patient was intensely jaundiced. A Wassermann test was 4 plus. The patient denied sexual intercourse. Antisyphilis treatment was employed without success. The hæmoglobin was 60 per cent, the red cell count 3,200,000, and the white cell count 3,300. Following removal of the spleen there was gradual improvement in the blood picture and the Wassermann test became negative. The patient was out of bed on the fourteenth day. The author states that in the presence of jaundice the Wassermann test is frequently positive. Seven months later this patient was back at work and showed an increase in weight.

The second case reported was a poor operative risk. Frequent tapings were necessary. The patient had been sick for four years and was jaundiced. The hæmoglobin was 50 per cent, the red cell count 2,700,000, and the white cell count 3,700. The patient died in shock twelve hours after splenectomy.

I. E. BISHKOW, M.D.

Goldstein, H. I.: Sarcoma of the Spleen. *Internat. J. Surg.*, 1922, XXIV, 274, 306.

Goldstein states that since Friedrich in 1865 reported his case of "multiple nodular hyperplasia of the liver and spleen" (which Bunting believes to have been a primary sarcoma of the spleen), he has been able to collect about sixty-six cases of primary splenic sarcoma.

Primary malignant diseases of the spleen he believes to be very rare, though cysts of various kinds are not uncommonly found at operation and autopsy. Spleens have been removed for many causes, such as splenic anemia, Banti's disease, pernicious anemia, leukæmia, malaria, syphilis, cysts, etc., but very few have been removed for primary tumor.

Trinkler found sixty-eight spleens with hydatid cysts in over 2,000 cases of echinococcus disease. Serous, blood, and lymph cysts have very frequently been reported, blood cysts being the most common.

Moynihan collected thirty-one cases of non-parasitic cysts of the spleen in which surgical treatment was carried out.

Hagan, in 1900, collected 360 cases of splenectomy, with a mortality of 38.3 per cent. Van Verts, in 1897, reviewed 374 cases with about the same mortality.

Bush, in 1910, reported a case of large-celled sarcoma of the spleen in a man 48 years old. The

spleen weighed 3 lbs. Bush states that, in all, there have been thirty-four undoubted cases of primary sarcoma of the spleen.

Japan and Albert in 1904 collected thirty-one cases of primary sarcoma of the spleen, and added one case of their own. In these thirty-two cases there were eleven splenectomies and one excision of the tumor. Their own case was that of a girl 15 years of age. Before the operation the blood count was 3,200,000 erythrocytes and 6,100 leucocytes, and the haemoglobin equaled 71 per cent. Three days after the operation the erythrocyte count had decreased to 3,100,000, the leucocyte count had increased to 24,000, and the haemoglobin had dropped to 28 per cent. Seven months after the operation the patient was perfectly well, the erythrocyte count was 4,400,000, the leucocyte count 10,800, and the haemoglobin 84 per cent. The spleen and tumor mass weighed 156 gm. and the tumor itself about 100 gm. Microscopic examination showed that most of the cells were spindle-shaped.

Weichselbaum reported a fibrosarcoma and a multiple endothelioma of the spleen, both in persons 21 years of age.

In 1894 Solis-Cohen and Riossan reported the case of a man of 41 years who had a primary small round-cell sarcoma of the spleen with secondary deposits in the stomach, pancreas, omentum, mesocolon, diaphragm, left lung, and pleura and the retroperitoneal, bronchial, and posterior mediastinal lymph glands, a parotid abscess, and non-haemorrhagic pleural effusion. No secondary nodules were found in the liver, the right lung, or the pleura. A marked increase in the white cell count led to a primary diagnosis of splenic leukaemia. The first blood count showed 2,600,000 red cells and a haemoglobin content of 30 per cent. The ratio of white to red cells was at first 1.69 but later became about 1.20. The interesting feature of this case was the extensive infiltration of the stomach, the oesophagus, kidneys, adrenals, and liver were free from metastatic growths.

Mannix, in 1902, described a case of primary sarcoma of the spleen in a horse.

In 1914 DeRenzi reported a case of carcinoma of the spleen, a rare form of primary splenic cancer.

Chalotow and Gergel reported tumors of the spleen, and Deamber described a case of traumatic splenic tumor.

Other cases, such as multiple cavernous angiomas of the spleen, splenic dermoid, and wandering spleen, have been reported.

Japan, in 1921, reported a case of primary haemangioendothelioma of the spleen occurring in an Italian woman of 31 years who first noticed a lump the size of a lemon under the left costal margin. Five days after operation the blood examination showed a marked decrease in the erythrocytes and a slight increase in the haemoglobin. Two months later the number of red cells was about normal and the haemoglobin was 53 per cent. He also mentioned Percy's case in which splenectomy

was followed by polycythemia, the red cells numbering 10,000,000, although before operation the patient had a mild secondary anemia.

In 1867 Woodruff reported the case of a woman 28 years of age who complained of a lump in her left side below the ribs. One year later she died. Autopsy showed the tumor adherent to the transverse colon, the pelvis of the left kidney, the pancreas, the stomach, and the posterior wall of the abdomen. The growth was 18 in. in circumference, firm, nodulated, cartilaginous in appearance, and in a state of degeneration.

In connection with this case the statement is made that the splenic sarcoma originating from the lymphoid structure is a lymphosarcoma, that arising from the trabeculae and capsule, a fibrosarcoma; and that arising from the endothelial cells along the trabeculae, a large round-celled endothelial sarcoma. Lymphosarcoma is the most common type occurring in the spleen.

Litten, Mosler, Heinrichius, Jordan, Flothmann, Collins, Krylow, Billroth, Kocher, Fritch, and Garré have all reported cases of pathologic spleens.

Bunting reported a case of primary sarcoma of the spleen in an Irish laborer 49 years of age. At autopsy the spleen was found to weigh 130 gm. The liver weighed 2,545 gm. and contained metastatic nodules. The pancreas also contained metastatic nodules.

Deaver, in 1914, reported a case of round-cell sarcoma treated by splenectomy. Six weeks after the operation the patient was discharged in good condition. Deaver stated that sarcoma is the most common tumor of the spleen.

Masi, in 1893, reported a case of lymphosarcoma of the spleen.

In the second portion of Goldstein's article he gives the autopsy records of the University of Pennsylvania of several cases of disease of the spleen, and in conclusion states that, while primary sarcoma of the spleen is very rare, primary carcinoma is even more rare, there being only about eight or nine authentic cases of the latter condition.

Secondary sarcoma and carcinoma of the spleen are very uncommon. Even in cases of the most extensive dissemination of tumor growth, the spleen escapes metastatic involvement.

DAN MELLE, M.D.

MISCELLANEOUS

Arzela, I.: An Anatomic-Pathologic Study of Lymphatic Cysts of the Omentum (*Contributo anatomico-patologico e clinico allo studio delle cisti linfatiche del grande epiploon*). *Pubblic. Rome*, 1922, xxix, 302, *idm.*, 417.

Arzela gives the clinical history of a female child aged 3 years whose condition was diagnosed as a cyst of the omentum or mesentery. At laparotomy a smooth, elastic, and very vascular pedunculated cyst was removed which had its base of implantation in the highest part and the median line of the great

omentum and was adherent to loops of the small and large intestines. It contained about 1½ liters of transparent yellow fluid and was 17 cm. wide and 26 cm. long. Macroscopic examination clearly differentiated it from chylous, hæmatic, and parasitic cysts, but microscopic examination was necessary to differentiate it from so-called neoplastic cysts.

Arzela gives the diagnostic points distinguishing simple serous cysts from cystic lymphangiomata, wolffian, and enteroid cysts.

Omental cysts may arise from degeneration of lymphatic glands, stasis and retention of lymph, transformation of hæmatomata, abnormal peritoneal development, residual tissue or embryonic rests, and congenital malformations of the lymph vessels.

The pathogenesis of these cysts is still unsettled, and all theories are open to objections. Arzela suggests that the cause is probably an anomaly of development of a lymph gland in the sense of deficient proliferation of the mesenchyma which constitutes the septa, this deficiency substituting a cystic cavity with lymph contents for the lymph gland. Such a mechanism of development would explain the formation of cysts in all regions rich in lymphatics, viz., congenital lymph gland cysts originating from lymph glands in their first period of development.

On this theory Arzela suggests the following classification of cysts:

Congenital cysts:

Simple: serous; chylous.

Neoplastic:

Ectodermic (epidermoid).

Mesodermic:

1. Lymphatic (lymphangioma, chyliangioma).

2. Wolffian.

Entodermic (enteroid).

Teratomata and fetal inclusions.

Simple and neoplastic cysts with intracystic hæmorrhage.

Acquired cysts: simple hæmorrhagic (encapsulated hæmatomata); parasitic; gaseous.

The treatment of these cysts is purely surgical. Evacuatory puncture, simple or associated with successive injections of a coagulating fluid, and marsupialization do not give any guarantee against recurrence or the formation of a fistula. Truly radical removal yields the best results. This is to be preferred to any other method also because it permits a complete examination of the abdominal cavity and shows the exact site and insertion of the pathologic process.

W. A. BRENNAN.

SURGERY OF THE EXTREMITIES

CONDITIONS OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Neumann, N. M.: Primary Echinococcosis of Bone (Primärer Knochenechinococcus). *Writschky's Wochenschrift für Heilkunde und Naturwissenschaften* i. *Rischkoto* W. *Pravenny Gospitala*, 1921, III, 45.

The patient, a 30-year-old man, first complained of pain in the knee in October, 1911. This soon subsided, but returned one month later. In December, 1911, a tumor of the knee developed. Treatment with hot air and compresses was given for six weeks but was without effect. In 1915 a tumor of the leg developed. Palpation revealed erosion of the bone, and marked swelling of the talocrural joint.

Walking became increasingly more difficult. Circumscribed round tumors finally developed in various areas of the leg. Puncture yielded pus. At the breaking down of one of these tumors, pulpy masses, small, sago-like vesicles, and clear fluid containing a large quantity of cholesterol were evacuated.

August 10, 1921, the leg was amputated because of swelling, a high temperature, and symptoms of sepsis. The soft parts were found to contain a large number of hydatid cysts. Microscopic examination revealed fat droplets, cholesterol crystals, and scolices. The knee and talocrural joint were entirely destroyed and the bone eroded. There was no new formation of bone.

GREGORY (Z).

Krogius, A.: So-Called Xanthosarcoma of Tendon Sheaths (Zur Kenntniss der sog. Xanthosarkome der Sehnenscheiden). *Finska læk.-sælsk. handl.*, 1922, lxdv, 102.

Following a historical review and a clinical discussion of xanthosarcomata of tendon sheaths, the author reports four cases, on three of which he operated himself.

Case 1. The patient was a woman 29 years of age who had had a tumor on the anterior surface of the right leg without subjective symptoms for ten years. At operation the growth was found to be adherent to the tendon of the anterior tibial muscle. It was 15 cm. long, 4 to 6 cm. in diameter, and of a lobulated structure. On section it was found to be grayish-white, with portions that were partly hyaline, partly sulphur-yellow, and sprinkled with brownish-black specks due to old extravasations of blood.

Case 2. The patient was a woman 56 years of age who had a tumor the size of a walnut on the dorsal surface of the wrist which was connected with the tendons of the extensor pollicis longus and the extensores carpi radialis longior and brevior and in color was partly dark brown and partly bright yellow.

Case 3. The patient was a man 48 years of age who had a small, grayish-yellow tumor on the back of the distal phalanx of the right index finger which was connected with the extensor tendon and somewhat lobulated.

Case 4. The patient was a woman 21 years of age who had a lobulated tumor, the size of a pigeon's egg, on the inner side of the foot, between the long plantar ligament and the tendon of the tibialis posterior, flexor digitorum profundus, and flexor digitorum superficialis. This growth was partly whitish-gray, partly hyaline, and partly yellowish. Recurrence developed one year after operation.

These four tumors, originating in different tendon sheaths, had much in common, but also many points of difference. Histologically they were all sarcomata, but as regards richness of cells, the proportion of immature-tissue stroma, and the presence of hemosiderin and giant and xanthoma cells, etc., they showed decided variations. In two cases hemosiderin was abundant, while in the other two it was present in only a small quantity. Typical giant cells were present in only one case. Xanthoma cells were found in abundance only in Case 1. In Case 2 they were absent. In Cases 3 and 4 there were a few. In a fifth case, that of an 11-year-old girl with xanthoma tuberosum multiplex, the picture of cholesterol infiltration into the tissues was noted, but no fibromatous, and still less sarcomatous, change in the surrounding tissues could be demonstrated.

On the basis of thorough microscopic examinations the author comes to the conclusion that too great importance has been ascribed to the presence of xanthoma cells, "honey-comb cells," in sarcomata originating in tendon sheaths, and that the deposit of cholesterol is not the primary cause, but a secondary phenomenon. He believes that giant cells, xanthoma cells, and hemosiderin are not essential constituents and the growth may not present a lobulated structure.

These neoplasms may show also clinical differences. Many grow slowly or remain stationary while others suddenly begin to increase in size very rapidly and develop into voluminous tumors. Small tumors of the finger appear to be relatively benign, while those in the palm of the hand, on the foot, and on the forearm sooner or later reveal a more malignant character. Cases in which there were metastases in the lymph glands and internal organs are described in the literature. Recurrences are not infrequent.

The treatment should consist in early operation, thorough removal of all diseased tissue, X-ray treatment following the operation, and, in the most severe cases, amputation. KORTINSEY (Z).

Iussena, S.: Contribution to the Study of Tumors of the Clavicle: Two Cases of Sarcoma with Spontaneous Fracture (Contributo alla studio dei tumori della clavicola: due casi di sarcoma con frattura spontanea). *Arch. ital. di chir.*, 1932, V, 111.

Neoplasms of the clavicle are rare and in surgical textbooks little space is devoted to them. They are of two types, benign and malignant. Among the benign neoplasms are chondromata, osteomata, the

hard periosteal fibromata, the periosteal lipomata, myxomata, and angiomata. The growths may be primary or secondary. Among the first are the connective-tissue tumors comprising the sarcomata which may become very large and cause ulceration of the skin. There are also those of the telangiectatic type which pulsate. The enchondromata and endotheliomata develop from the periosteum at points where there is normally no cartilage, possibly arising from aberrant cartilaginous rests. These have the histologic structure of benign tumors but clinically are malignant as they break into the blood vessels and metastasize. Recently the endothelioma has been classified as a connective-tissue tumor in which the endothelial elements may change to epithelium.

Cancer of the clavicle has been described as a primary tumor but is usually secondary to cancer in nearby structures such as the thyroid. Cases have been reported in which the primary growth was in the testicle or stomach. According to Polakoff, malignant tumors of the clavicle are approximately three times as frequent as benign tumors, and according to Coley and Johansson constitute from 4 to 6 per cent of all skeletal neoplasms. They are twice as frequent in males as in females and occur more often in the young than in adults. As a rule the external part and the upper surface of the clavicle are affected. In thirty cases of primary neoplasm of the clavicle an injury preceded the development of the tumor.

The benign tumors grow slowly and often become very large without causing inconvenience although usually they exert pressure on nerves and vessels.

In the majority of cases the diagnosis is easy but in some it may be difficult. In the differential diagnosis exostoses and haetic osteoperiostitis, which usually occur in the mesial half of the clavicle, and tuberculous periostitis must be considered. The pulsating type of tumor is to be differentiated from an aortic or brachiocephalic aneurism.

In cases of malignant tumors the prognosis is very grave since recurrence is the rule.

The treatment, even for benign tumors, is excision to prevent pressure. Malignant tumors should be extirpated early *in toto* with the periosteum. Later a bone or muscle transplant may be used to replace the clavicle. The surgeon must avoid injuring the subclavian vessels, nerves, and pleura. In 147 cases of malignant tumors of the clavicle collected by Angelletti there were sixty-five total excisions.

The sarcomata have a predilection for the long bones, especially the bases of the bones of the lower extremities. The periosteal type of sarcoma developing on the shaft or between the shaft and the epiphysis sends metastases as emboli to the viscera. There is also the myelogenous type which arises from the epiphysis or the short bones and often causes fracture. Among the skeletal sarcomata are the lymphadenoid sarcoma, the lymphosarcoma, sarcoma fibromatosa, sarcoma myxomatosa, sar-

coma chondromatosa, osteoid sarcoma, melanotic sarcoma, and myeloma. Often a sarcoma develops so insidiously that the first indication of its presence is the occurrence of a fracture. Fractures are caused most frequently by the myeloid round-cell type—according to Schwartz, in 30 per cent of the cases. This is a sign of rapid growth of the neoplasm. Courtin has reported a case of sarcoma of the clavicle in the newborn. Lussena reports two cases of sarcoma of the right clavicle with fracture in persons past 60 years of age. One of the growths was a central round-cell sarcoma and the other a periosteal fusio-cellular tumor. In both cases Lussena extirpated the clavicle *in toto*. One patient died of pneumonia a few months later. The other was still without recurrence eighteen months later.

HUBERT F. DUNN, M.D.

Johansson, S.: A Disease of the Patella Not Hitherto Described (Eine bisher nicht beschriebene Patella-Erkrankung). *Hygiea*, 1922, lxxxiv, 161.

The author reports a rare but distinct disease occurring in children between the ages of 10 and 15 years which, in its etiological, clinical, and roentgenologic aspects, somewhat resembles Schlatter's disease. This condition is unilateral or bilateral and usually develops after an injury with slight swelling and tenderness over the apex of the patella and pain in the knee. The roentgenogram shows a loosening or splintering of the bone at the tip of the patella. In one of the four cases reported the tibial spines showed the same picture. The symptoms disappear in a few weeks after immobilization of the affected part. The article is illustrated with roentgenograms.

PEIFER (Z).

FRACTURES AND DISLOCATIONS

Ferry, G., and Ortscheit, E.: Fractures of the Surgical Neck of the Scapula (Fractures du col chirurgical de l'omoplate). *Arch. franco-belges de chir.*, 1922, xiv, 726.

The case reported was that of a boy of 17 years who was run over by a wagon after falling face downward with his arms extended. On examination the right shoulder was found to be somewhat higher than the left. Palpation caused extreme pain in the region of the coracoid process. The X-ray showed that the fracture began at the coracoid notch, traversed the supraspinous fossa vertically, and extended to the subspinous fossa where it described a curve with its concavity toward the edge of the axilla which it reached at a point 5 cm. beneath the infraglenoid tubercle. The distal fragment, composed of the coracoid process, the acromion, and the glenoid, was displaced upward and backward.

The interesting points of the case are the peculiar trajectory of the fracture and the upward displacement of the distal fragment.

Isolated fractures of the surgical neck of the scapula are very rare; fewer than twenty cases have

been reported in the literature. Such fractures may be complete or incomplete. Ferry and Ortscheit have been able to find in the literature only one other case with upward displacement of the distal fragment.

Because of the upward displacement no reduction nor retention measures were necessary in the authors' case. Massage and early mobilization were followed by an excellent functional and anatomical recovery.

W. A. BRENNAN.

Rocher, H. L.: A Case of Transacetabular Pelvic Luxation—Central Luxation—of the Head of the Femur (A propos d'un cas de luxation pelvienne transacétabulaire—luxation centrale—de la tête fémorale). *Arch. franco-belges de chir.*, 1922, xxv, 746.

More than sixty cases of transacetabular pelvic luxation of the head of the femur have been described in the literature. Quite recently Rahmann reported sixteen new cases. There are different anatomical types. The fundus of the cavity, entirely detached at its periphery, is embedded in the pelvis and this embedding is almost always accompanied by a forcing back of the anterior-superior or the posterior-inferior segment of the acetabular cavity.

The clinical picture is explained by the muscular and vascular injuries caused by the fracture. The lesion denotes abnormal resistance of the neck of the femur.

The gravity of the condition depends to a great extent on the associated lesions. The treatment is complicated only when there are old unrecognized lesions; therefore in all cases of pelvic injury the patient should be subjected to an X-ray examination.

The author has seen two cases. One was that of a woman of 35 years who acquired a transacetabular pelvic luxation of the femur to the right and a fracture of the elbow in an automobile accident. The clinical and X-ray findings were almost identical with those in the second case, that of a man who, following a fall from a window, suffered retention of urine and showed symptoms of a pelvic fracture. In the latter case a complete examination was not made until some months later. The X-ray then showed a transacetabular pelvic luxation of the femoral head, a vertical fracture of the iliac wing, and contact of the tip of the great trochanter with the edge of the acetabulum. The profile of the pelvic cavity could be clearly seen near the sacro-iliac joint. Objectively there was shortening of the left leg and stiffness and a slight kyphosis in the lumbar region. The urinary disturbance had ceased. About four fingerbreadths from the anterior-superior iliac spine a large bony mass could be palpated. This was the upper part of the callus of the iliac fracture. There was undoubtedly also a fracture of the body of the second lumbar vertebra.

The prognosis of these injuries, apparently so severe, is favorable. A neo-arthritis is developed between the femoral head and the embedded acetabular cavity which permits mobility and use of the injured limb.

W. A. BRENNAN.

Willms, C.: *The Technique of Operation for Fracture of the Patella* (*Technique de l'opération pour fracture de la rotule*). *Arch. méd. belge*, 1922, lxxv, 744.

In cases of patellar fracture in which operation is indicated it is absolutely necessary to obtain bony union of the fragments. This can be done either by suturing the fragments or encircling them with wire. Willms prefers the encircling method. It is simpler than perforating sutures and it is applicable to all cases whereas perforating sutures are more especially applicable to cases in which there are two large and almost equal fragments. The encircling wire also holds better than the perforating wire. On the other hand, wire has certain disadvantages as it may break or the knot may become undone. For these reasons Willms has discontinued its use and now employs silkworm gut. Wire becomes encysted and its presence is marked by an enlargement of the patella which is permanent. When silkworm gut is employed the enlargement gradually disappears. The gut has never broken or come loose in any of Willms' cases.

W. A. BRENNAN.

SURGERY OF THE BONES, JOINTS, MUSCLES, TENDONS, ETC.

Oehlecker, F.: *Bone and Joint Transplantation* (*Am dem Gebiete der Knochen- und Gelenktransplantation*). *Beitr. z. klin. Chir.*, 1922, cxxvi, 135.

In the first part of his article the author reports eight cases of plastic surgery of the finger. He took his grafts from fingers or toes. Some were autoplasmic and others homoplasmic. While Oehlecker describes the results of substitution of the middle joint as only moderately successful, the proximal joint was replaced in some cases with very good functional results. Failure in the unsuccessful cases he attributes to the smallness of the transplant. At least half the phalanx should be transplanted with the articular portion as otherwise fixation is very difficult, adhesions take place, and in the mechanical after-treatment orientation as regards the articular space is made more difficult.

Oehlecker believes the homoplasmic operation offers a good chance of success if the technique is correct, but he prefers the autoplasmic, since after a length of time sections of homoplasmic joint transplants have been found considerably deformed. He agrees with Axhausen that the best material for a transplant is living bone of the same species with the periosteum attached. Since all regeneration proceeds from the periosteum or the marrow, living periosteum must be transplanted with the graft or must be retained in the wound bed. Ankylosis did not develop in any of the author's cases, but because of unavoidable necrosis of cartilage reactive changes similar to those of arthritis deformans are always to be feared. Care must be taken therefore to prevent necrosis of cartilage as far as possible by keeping the transplanted tissue

bathed in tissue fluid. The articulating extremities must not touch each other and too early weight-bearing must be avoided. For the same reason it is better, at least in the treatment of the larger joints, not to include the capsule in the transplant; in the treatment of the smaller joints it cannot be spared on account of the fixation of the parts.

The indications for joint transplantation the author regards as limited. In the larger joints arthroplasties are always to be preferred but, in view of the good results which are reported, free transplantation of an entire joint or half of one seems to be justified for the preservation of a valuable finger.

The second part of the article deals with the reconstruction of the thumb. There are two chief methods: (1) the formation of a thumb from skin taken from the abdomen and a piece of bone, or the transplantation of portions of a toe or finger, and (2) plastic surgery with the aid of surrounding parts. When the loss is limited to the phalanges, lengthening of the metacarpal bone will give the necessary gripping power. The chief requisite is that the transplanted piece shall soon become sensitive, for sensibility is a preliminary condition for the use of a part. Therefore all scar tissue must be carefully removed so that the nerves may grow out from the newly cut surfaces unhindered.

Plastic surgery with the aid of the surrounding parts is particularly valuable from the standpoint of the early development of sensation. Substitution by means of the great or second toe demands much patience on the part of the patient and the best technical training on that of the surgeon, but exceptionally fine results have been obtained by this method, even when healing did not occur by first intention. A ventral or dorsal flap may be sutured in place first. Before complete division of its pedicle, it should be notched or the circulation stimulated by means of a leech or massage. It is best to take the toes of the opposite side. The tendon suture can be done either in the first or the second stage of the operation.

The author reports an interesting case of transplantation of the great toe to the stump of the forearm. At the first sitting the radius was shortened a few centimeters, the epiphysis being spared; in the second sitting the great toe was joined to the end of the radius by Nicoladoni's method. The parts healed together completely and an excellent functional and cosmetic result was obtained.

In conclusion the author gives his views regarding the transplantation of epiphyseal cartilage on the basis of five cases. In no case, even following autoplasty, did the epiphysis remain alive. He believes that the intermediate cartilage is preserved only when the bone also remains alive; that is, when the graft is pedunculated. In all free transplantation the bone is absorbed and with it the intermediate cartilage; this the author affirms in spite of statements by others to the contrary. The observation made by Heller in animal experimentation that when

the intermediary cartilage is transplanted alone it remains alive and capable of longitudinal growth, has not yet been proved true in man.

GERLACH (Z).

Policard, A.: The General Biological Phenomena of the Evolution of Bone Grafts (*Les phénomènes biologiques généraux de l'évolution des transplant osseux*). *Lyon chirurgical*, 1922, XXIX, 336.

Policard states that in the early stage a bone transplant shows an interstitial substance with cavities free from osseous cells and with haversian canals filled with new vasculo-connective tissue. This phase is followed by resorption of the bone substance which occurs not only peripherally but also internally. The next biological phenomenon is osseous neoformation of the transplant which begins in both the surrounding connective tissue and the interior.

Transplanted living bone reacts like a dead bone transplant. Transplanted dead bone acts like a fragment of living bone transplanted to an animal of a different species.

With regard to the periosteum, Policard tates that if its presence is not essential in the evolution of a bone graft, the presence of a connective layer on one surface of the transplant is at least favorable to it. If the periosteum is very fibrous, however, it may hinder the "taking" of a graft because it obstructs the penetration of the capillary vessels and connective tissue into the haversian canals.

Policard's experimental investigations on bone grafting were begun in 1917 but interrupted by the war. He finds that his results agree in general with those of German, American, and other French investigators.

The laws governing the evolution of bone grafts are the same as those regulating normal ossification. Ossification is always a process of metaplasia of connective tissue which demands a supply of calcareous material. The latter is furnished by resorption of the neighboring bones. This explains the constant co-existence of the two phenomena of rarefaction and osseous neoformation.

W. A. BRENNAN.

Dollinger, B.: The Surgical Treatment of Pseudarthroses (*Chirurgische Behandlung der Pseudarthrosen*). *Orthopädie*, 1922, XII, 30.

Dollinger reviews the war material of Verebélyi, who classifies pseudarthroses into: (1) aplastic pseudarthroses, (2) interpositions, (3) deviations, (4) separations; and (5) pseudarthroses with defects. Of 230 patients with pseudarthroses 157 were operated on. Their ages ranged from 20 to 40 years. Of the cases operated upon, 129 were gunshot injuries, nine showed the retention of pieces of shrapnel, ten showed retention of bomb splinters, three were due to railroad accidents, and one was due to an explosion. The pseudarthrosis involved the clavicle in one case, the humerus in eighty-five cases, the radius in four, the ulna in sixteen, both

bones of the forearm in eleven, the femur in seventeen, the tibia in eighteen, and both bones of the leg in five. Bone suture was done 134 times and bone transplantation twenty-three times. Of the patients operated on, 128 were examined subsequently. The bone sutures held in 100 cases, bony union failed in two, the transplantations were consolidated in eighteen, and pseudarthrosis occurred in five.

A pseudarthrosis should be operated upon when ossification has not occurred at the end of three months after the injury. This is important mainly because secondary shrinkage of the muscles may cause curvature of the extremity. The bloodless procedures do not give the desired result in war injuries and are a useless waste of time. Of the operative procedures, the best is bone suture, or possibly bone transplantation, the latter in the presence of pseudarthroses with large bone defects. Slight suppuration and fistulae are not contra-indications.

The most important part of the after-treatment is massage and early use of the extremity.

VON LOHMAYER (Z).

Fischer, W.: Interscapulo-Thoracic Amputation [*Zur Amputatio interscapulo-thoracalis*]. *Deutsche med. Wochenschr.*, 1922, XLVIII, 864.

In sarcoma of the scapula the ablation of the left shoulder girdle and arm was carried out in the following manner:

Under ether anaesthesia the clavicle was divided, the vessels ligated, and the nerves sectioned in the usual manner. The incision was then carried vertically to the breast, from there, at a right angle, across to the back and the lower angle of the scapula, and from there in a straight line upward over the scapula. Beginning at the starting point over the clavicle a large skin flap was then cut from the upper arm with its base above (region of the acromio-scapular joint). The incision was carried along the biceps to a point half way down the upper arm and from there transversely and upward on the posterior side of the arm as far as the end of the first incision. The flap was then dissected up and the shoulder girdle removed. In front, the major and minor pectoralis muscles were removed close to their costal insertions, as in amputation of the breast, and behind, all the muscles inserted into the scapula, as far distant from the latter as possible. The same dissection was carried out above. Finally, with a longitudinal incision corresponding to the external border of the sternocleidomastoid muscle, all the glands as far as the level of the thyroid cartilage were taken out.

After removal of the shoulder girdle the arm flap was reflected downward and the defect fully covered with a skin flap taken from the abdomen. A narrow margin of the arm flap later became gangrenous but transplantation was not necessary. The wound healed rapidly and well. There has been no recurrence up to the present time, one and one-half years later.

CREITE (Z).

Lemermant, C.: A Case of Arthroplasty for Ankylosis of the Knee (*A propos d'un cas d'arthroplastie pour ankylose du genou*). *Presse méd., Par.*, 1921, 333, 911.

The author reviews the history of arthroplastic operations on the knee and cites the view of Lane that ankylosis of the knee in extension is an advantage to those who walk a great deal and do heavy physical work but a distinct disadvantage to those who sit while working. The first attempts to mobilize an ankylosed knee were made by interposing various substances between the patella and the femur in cases in which there was an inflammatory union. The first attempts upon the knee joint proper were not successful and the knee was therefore looked upon as unfavorable for arthroplasty.

About 1901, Payr, Wilms, Enderlen, Franke, and others began to report favorable results. Tubby reported one unfavorable result and two favorable results as regards movement but even in the latter cases the pain persisted. Since the war Putti is of the opinion that the knee offers a most promising field for plastic operations. He states that the joint must be both stable and mobile, that a knee which is mobile up to 45 degrees, solid, strong, and painless is of much more value than one which has a large angle of movement and is not able to support the body. In 1916 Blair reported twenty-eight cases in which the interposition of a pig's bladder was done. Favorable results were obtained in fifteen cases. Cases in which the ankylosis was of a fibrous nature gave more favorable results than cases of bony ankylosis. Ankylosis between the femur and the patella was found to be better than ankylosis between the femur and the tibia.

Lemermant reports one case of arthroplasty for fibrous ankylosis of gonorrheal origin between the patella and femur and the tibia and femur. Through a lateral incision the tibial tuberosity was cut off and reflected with the patellar ligament, a quadrilateral flap of capsule and aponeurosis was dissected, and the patellar adhesions were removed. An incision was then made parallel to the inner margin of the patella and a second similar flap formed. The ankylosis was broken, the fibrous tissue removed, and the under surface of the patella and articular surfaces of the femur and tibia were modeled. The flaps were then sutured together between the joint, posteriorly to the remains of the crucial ligaments and in front to the capsule.

The postoperative treatment consisted of extension for ten days with 6 kilos weight and, after three weeks, massage of the quadriceps, slight passive movements, light and thermal baths, and weak galvanic treatments.

Nineteen months after the operation the patient was able to climb stairs, having flexion of 30 degrees and normal extension. There was a slight abnormal lateral movement but this caused no inconvenience.

Lemermant believes that the patient's general state of health, age, social condition, occupation, energy, desire to be cured, and willingness to help

should be taken into consideration. The operation described is not suited to infants, old people, or multiple ankyloses as in such cases the ankylosis tends to recur. Neither is it suitable for persons who do hard physical labor and are unable to carry out the prolonged and careful after-treatment. The indications vary with the anatomical nature of the ankylosis and its etiology. The fibrous ankyloses have a better prognosis than the bony. According to Putti, those due to trauma are very well suited to the operative procedure, while those due to tuberculosis have a very unfavorable operative prognosis.

The technique of various surgeons is different but in every method care is taken not to harm the extensor function of the knee by cutting the patellar tendon. Murphy made two incisions parallel with the sides of the patella and used a pedunculated flap. Putti makes a horseshoe incision with its concavity downward and a vertical incision. He then frees and doubles back the patellar tendon to obtain access to the joint, models the joint surfaces with care to preserve the lateral ligaments, and interposes free fatty flaps from the fascia lata. Payr makes the concave surfaces more concave and the convex less convex. Putti lengthens the quadriceps tendons and carefully restores the ligaments and capsule so essential to strength and stability. Passive motion is begun after the tenth day.

HENRY DENS, M.D.

Nussbaum, A.: Deformities Following Resection of the Knee Joint in the Child (*Ueber Deformitäten nach Resektion des kindlichen Kniegelenkes*). *Beitr. z. klin. Chir.*, 1922, CXXV, 662.

Whereas in adults resection of the tuberculous knee joint according to the Garré technique results in a cure in 92 per cent of the cases in which there are good mechanical relationships, in children the shortenings and curvatures appearing in the course of time disturb the talipes cavus and the coxa valga formation. The younger the child at the time of operation the more marked the shortening. Whether the retardation is greater in the tibia or the fibula depends only upon the site of the destruction of the metaphysis by the tuberculosis and the line of resection. Through retardation of the tibia the tip of the head of the fibula, which normally lies at the level of the epiphyseal line of the tibia, may be moved upward quite some distance. Lengthening of the diseased extremity has never been observed. When the epiphyseal line is normal and can be spared in the resection, no shortening develops. The ability to walk is little affected even by considerable shortening.

A more disturbing factor than shortening is bending in the resected knee joint. It is a striking fact that after several years' observation absolutely straight knees were found in about 25 per cent of cases and crooked knees (less than 150 degrees) in 75 per cent. The cause of the curvature is rarely to be sought in a wedge-shaped growth of the meta-

physis such as occurs following partial destruction of the epiphyseal line by tuberculosis or a too oblique resection. As a rule there is a giving way at the site of the resection or separation of the epiphysis of the femur.

Spontaneous correction has occurred during the course of several years in cases of distinct backward subluxation of the leg and angular flexion of 160 degrees. Two cases of genu recurvatum which were studied may explain the separation of the epiphyseal line of the femur. The fact that the epiphyseal separation occurs only in the femur is probably due to the destruction of the vascular connection between the epiphysis and the edge of the metaphysis by the resection. On the whole, the process of bending has been explained but the primary cause is not known. The bearing of weight and tension of the flexor muscles can be effective only when the bending has already begun. According to Ludloff, flexion contractures occur even in paralysis of the flexor muscles. Up to the present time neither tenotomy nor the use of an extension apparatus has been found definitely to prevent the bending. Flexion contractures are corrected by a wedge-shaped osteotomy at the site of resection. Recrudescence of the tuberculosis has never been observed.

Angulations in the frontal plane are rare and usually slight. The Lehr deformity (genu varum

with internal rotation of the tibia) showed a wedge-shaped epiphysis in the tibia, but no explanation could be found for the rotation.

The foot is shortened in length and talipes cavus due to atrophy of the calf muscles and the development of a pointed foot are frequently seen.

Coxa valga appears in the hip joint. The mensuration is done according to Lange's method. There is nothing characteristic of tuberculosis and resection. This bending is seen also in paralysis. In the mobility of the hip of the leg operated upon the striking features are the fact that adduction is usually limited and abduction is increased. No patient complains of pain in the hip. In many cases the neck of the femur is elongated. Subluxation of the head of the femur is most readily recognized from the fact that in the usual roentgenograms of the pelvis the upper edge of the obturator foramen and the lower edge of the neck of the femur form a semi-oval.

In the cases of children resection should be done only after conservative treatment has been found of no avail. Cases in which resection failed because of gangrene of the skin flaps and failure of consolidation after prolonged roentgen-ray treatment are unfavorable. The use of the roentgen-ray must be restricted to cases prognostically favorable.

SIMON (Z).

SURGERY OF THE SPINAL COLUMN AND CORD

Roger, H., and Pourtal, L.: Mesencephalic Spasmodic Torticollis and Lesions of the Vertebrae (Torticollis spasmodique mésentéphale et lésions vertébrales). *Prose méd.*, Par., 1922, xxx, 785.

Marie, in a systematic X-ray study of the cervical vertebrae made in 1920, found that in seven cases of spasmodic torticollis there was flattening and crushing of the vertebrae with or without decalcification. Roger and Pourtal attribute the new formations of bone which irritate the spinal roots of the fifth and sixth nerves to a vertebral arthritis. In 1922 Babinski presented a case of mesencephalic origin in which he believed there was a lesion of the center controlling the movements of the neck.

Roger and Pourtal report eight cases. In one, in which a cervical rib was found, two injections of novocaine into the sternocleidomastoid muscle prevented the spasm for a year. In the other cases there were bony changes in the cervical vertebrae, and in one a calcification of the scalenus muscles was discovered. These cases also presented symptoms of a lesion of the pyramidal tract.

The authors believe that spasmodic torticollis has two distinct etiological factors, viz., irritation of the cervical roots due to arthritic changes in the structure of the vertebrae, the latter being secondary to incessant movements due to mesencephalic lesions, particularly in the corpus striatum, the center of automatic movements. This process may be favored by an arthritic diathesis. HUNTER DUNN, M.D.

Bradford, E. H.: The Treatment of Caries of the Spine. *Internat. J. Surg.*, 1922, xxxv, 261.

Bradford reports several cases of spinal caries which were examined years after the termination of successful treatment by various methods.

These cases were all treated before the days of X-ray or laboratory tests. Therefore the diagnosis rested upon the judgment of an expert skilled in recognizing the well-marked symptoms, viz., pronounced angular curvature with a sharp knuckle, constitutional disturbances, such as loss of weight, neuralgic pains, spinal or muscular stiffness, and, in a few cases, a cold abscess.

All of the patients had suffered an injury in early life, about the fifth, seventh, or ninth year of age. Most of them had had at least a brief period of recumbency in a hospital followed by the application of a jacket and braces. Head traction was also used when the caries affected the cervical portion of the spine. In one case a bone transplant was employed.

These cases are cited to show that when caries of the spine is carefully and conservatively managed with a comparatively short period of recumbency or with ambulatory treatment from the onset, healing with little or no deformity may be expected. Operative intervention appears to be of advantage only for those who are unable to consult surgeons skilled in conservative methods or those who are impatient and prefer the risk of operative

failure and the certainty of a permanently stiffened back to the tedious of a few months' recumbency or the difficulty of securing a properly supporting brace or jacket.

Conservative treatment Bradford regards as a greater factor than surgery. In splinting a carious spine it is necessary to relieve the carious vertebra from crowding pressure in order to prevent osteomyelitic changes. A mechanical splint may be removed after cure, but the spine operated upon remains permanently stiff.

In the recumbent treatment the patient should be kept on his back with upward pressure on the transverse processes at and below the area of active disease and absence of pressure on the transverse processes above the point of disease. Recumbency which allows some crowding may be very injurious. In acute cases the general condition will improve because of the freedom from pain and irritation.

In the ambulatory apparatus, the same objects must be realized. Ambulatory treatment may be begun as soon as the bone healing has progressed to such a degree that loosening of the brace will be harmless.

Whatever method of treatment is adopted, the surgeon should have some means of measuring the changes in the vertebral bodies. As healing takes place the sharply projecting knuckles disappear into a more evenly rounded curve or, in the more successfully treated cases, there is restoration of a more nearly normal outline by the adaptive shaping of the growing bone.

The usual method of recording the spinal outline consists in applying to the line of the projecting spines a strip of muslin thin enough to be flexible and thick enough to preserve its shape. This is then laid sideways on a sheet of stiff cardboard and the outline traced. The condition of the column should always be constantly watched by tracings as the latter are more important than X-ray pictures.

As far as possible, persons suffering from tuberculous invasion of bone tissue should be spared the trauma of surgical attack.

Mechanical aids should be adjusted to meet thoroughly the mechanical indications.

DAN MILES, M.D.

Fouilloud-Buyat: Dorsalization of the Seventh Cervical Vertebra (*Quelques considérations sur la dorsalisation de la VII^e vertèbre cervicale*). *Rev. Chir.*, 1925, 33, 376, 377.

The author reports a case of cervical rib in a young woman aged 25. Up to her twenty-fifth year the condition had caused no inconvenience, but since then pain and other symptoms had persisted despite treatment. X-ray examination showed the presence of two cervical ribs. It revealed also enlargement of the transverse process of the seventh cervical rib on both sides. The author's studies lead him to conclude that the possibility of the latter malformation should always be borne in mind.

There are cases with the clinical symptoms of cervical rib in which the X-ray shows only hypertrophy of the transverse process of the seventh cervical rib. There are also cases of cervical rib with symptoms suggesting syringomyelia. It is not illogical to conclude therefore that dorsalization of the seventh cervical vertebra may conceal a medullary malformation to which many of the symptoms are due.

W. A. BRIDGES.

Sturgis, M. G.: Unrecognized Fracture of the Spine. *Boston M. & S. J.*, 1922, LXXXVI, 255.

Sturgis speaks of cases of palpable fracture of the spine in which cord symptoms were absent or only temporary.

Kuemmel in 1895 first described this type of injury and since then has reported five cases.

Sever points out that the symptoms may not appear for months or years, depending on the extent of the injury and the patient's physical activity.

In cases of any duration the pathology is distinctive—disappearance of the body of the vertebra and the contiguous intervertebral discs and possibly also of the articular surfaces of the two adjacent vertebrae. This process is most marked on the front of the vertebra because of the greater resistance of the denser bone constituting the mural arch which, with its ligaments and tendinous attachments, has less pathologic motion than the body.

Kuemmel calls this condition "spondylarthritis," while Schede refers to it as "spondylomalacia."

Many cases have had no treatment and have been recognized only accidentally after a lapse of years. In some instances simple retention and rest in bed have been sufficient to effect a cure. In others the use of a plaster jacket and cast over a considerable period of time has been necessary. Many cases have required open operation with autogenous bone transplantation.

In choosing the form of treatment the patient's occupation, financial condition and number of dependents, and the amount of time he can give to obtain a cure must be considered.

In cases of injury in the lumbar or lower thoracic regions the bone splint is indicated, especially when the patient can devote relatively little time to the treatment. It is indicated also when conservative treatment does not give relief or the lesion progresses even with rest in bed.

Sturgis reports eight cases. In the first two, movement of the head was difficult for some time, but the patient was unaware of the vertebral fracture for years or until the X-ray disclosed the condition.

In Case 3 discomfort in moving about followed an injury to the spine. The X-ray showed the third lumbar vertebra to be one-third the normal size. An autogenous bone splint was inserted with a very good result.

Case 4 was that of a lineman who fell with a pole which had broken at the base. An X-ray examination of the shoulder which was supposed to

be injured proved negative. Several weeks later when the patient was first seen by Sturgis he showed a marked kyphosis of the eleventh dorsal vertebra. The X-ray revealed destruction of the inferior surface which was more marked on the anterior side. This patient refused treatment.

In Case 5 a fall of 18 ft. was followed by pain in the back which was shown by the X-ray to be due to injury of the eighth thoracic vertebra.

Case 6 was that of a man 73 years of age who was injured by a heavy weight falling on his shoulder. Complaint was made of pain in the mid-lumbar region. The X-ray revealed a horizontal fracture of the third lumbar vertebra. Because of the patient's advanced age he was treated with apparatus.

Case 8 was that of a man of 21 years who fell 40 ft. and landed on his chest. It was believed at first that he had fractured only one of the small bones in the right hand. He was in the hospital twelve weeks and complained of great pain and weakness. The X-ray showed fractures of the fifth, sixth, seventh, and ninth thoracic vertebrae.

The last case reported was that of a man of 32 years who fell 20 ft., striking on his head. Five weeks later an X-ray examination showed injury to the fifth and sixth vertebrae. A lateral view revealed plainly a diagonal fracture of the body of the fifth.

The third, fourth, fifth and seventh cases cited uphold the Sever theory that an untreated lesion is progressive.

In the sixth case, a horizontal fracture through the body of the vertebra without involvement of either articular surface and without pressure on the spinal cord, healing may result from the use of the retention apparatus, but the patient's advanced age is an unfavorable factor.

In Cases 3, 4, 7, and 8 operation is indicated as all of the patients are laboring men and have dependents.

DAN MELLE, M.D.

Naffziger, H. C.: Spinal Cord Tumors (Arachnoid Fibroblastomata). *Surg. Clin. N. Am.*, 1922, II, 363

The author reports six cases of spinal cord tumor selected from a series. They were all fibroblastomata and of a type particularly amenable to surgery.

Cord tumors are not usually diagnosed until the paralysis is far advanced. Each of the author's patients had had from four to twenty medical attendants before the condition was recognized. This was due to the general belief that spinal cord tumors are infrequent and to the fact that the symptoms are often attributed to syphilis. The diagnosis is not difficult as usually there is a history of a slowly oncoming paraplegia or quadriplegia with a constant upper level of sensory involvement.

The degree of permanent damage depends upon the rate of progress of the condition and the degree of compression. All these cases showed marked paralysis with relief of pressure soon after the operation.

The question of nomenclature is discussed, and the term "arachnoid fibroblastoma," suggested by Mallory, is adopted by the author because of the origin and character of the tumor.

Five of the six cases were traced for from two to ten years. All had been subjected to laminectomy, which requires attention to detail in the prevention of hemorrhage and delicate handling of the intradural structures, but presents no peculiar technical difficulties and does not involve a great tax on the patient's physical resources.

The differentiation of an intramedullary degenerative process from a lesion which blocks the subarachnoid spaces is important. The combined cistern and lumbar puncture is a valuable aid. Naffziger does not advocate the occipito-atlantoid puncture for routine work, but states that it may possibly give further knowledge regarding variations in intracranial pressure. Cistern puncture is far more dangerous, if not properly done, than spinal puncture, but is less of a risk than permitting the condition to go unrecognized or resorting to an exploratory operation.

In five cases removal of the tumor was followed by recovery from the paralysis. The sixth case was operated on too recently to warrant conclusions as to the final outcome. Three of the patients present no symptoms or findings whatever of their previous condition. One, an elderly woman, uses a cane and is slightly spastic. Another was walking unaided two months after the operation and has not been re-examined. All of these patients except one were women about 41 years of age.

Of all cases of spinal tumor those of arachnoid fibroblastoma have shown the best results.

MARCUS HOBART, M.D.

Bevan, A. D., and Gill, J. C.: Endothelioma of the Spinal Cord. *Surg. Clin. N. Am.*, 1922, II, 695.

The first case reported was that of a well-developed woman 31 years of age who complained of pain in the left side of the abdomen and difficulty in walking. The pain was of eight months' duration, and at first, moderately severe. It had always been on the left side, extending from the middle of the left side of the back in the lumbar region forward to the mid-abdomen in a zone about 4 in. wide. It was usually dull, but sometimes cramp-like. The family and personal history revealed nothing of importance.

Physical examination showed that both sides of the body were symmetrical and without muscular atrophy. The knee jerks were exaggerated. Ankle-clonus and a positive Babinski were present on both sides, but all reflexes were more pronounced on the left side. The abdominal reflex was absent on the left side and present on the right. In the upper extremities the tendon reflexes were present and equal. All eye movements were normal.

Pain and temperature sense was diminished equally on both legs, most markedly below the knees. Tactile sense was present in both lower extremities, but diminished below the knees. Muscle

sense was markedly diminished in the left lower extremity, but normal on the right side. The upper extremities and the trunk above the tenth dorsal segment were normal. The Romberg sign was present and marked. A narrow zone of hyperaesthesia was found in the region of the tenth dorsal segment.

The bladder was normal except that at times the patient experienced slight difficulty in emptying it.

The gait was shuffling and spastic. The flexors of the knees were stronger on the right side than on the left.

The X-ray examination of the spine was negative. Spinal fluid also was negative except for a 1+ Nonne.

A diagnosis was made of intradural tumor on the left side of the cord at the level of the tenth dorsal vertebra. This was based upon the history of persistent pain localized along the distribution of the twelfth dorsal segment, the disturbance of pain and temperature sense on both lower extremities, the especially, the exaggerated reflexes, the positive Babinski, and the ankle-clonus on both sides. Such a combination indicated interference with the functions of the Gower tracts which was more pronounced on the left side, interference with the cerebellar tracts carrying impulses of muscle and joint sense on the left side.

Differentiation was made from the various types of subacute and chronic myelitis, such as lateral sclerosis, ataxic paraplegia, and combined sclerosis. In syringomyelia there would be dissociation of sensation.

Intramedullary tumors show a tendency to extend to other segments of the cord, thus causing shifting of the symptoms. In the case reported the symptoms were confined to one segment of the cord.

The position of spontaneous, persistent pain along the distribution of the twelfth dorsal segment indicated that the tumor was opposite the body of the ninth dorsal vertebra.

Incision was made from the twelfth dorsal spine upward for a distance of 6 in. and the muscles and soft tissues were separated from the posterior surface of the arches with a chisel. Rouquier forceps were used to bite off the spinous processes of the ninth, tenth, eleventh, and twelfth vertebrae, and also the arches of these vertebrae. When the cord was exposed by splitting the dura a neoplasm was revealed at the side of the tenth dorsal vertebra. This tumor was the size of a cranberry and had the appearance of an endothelioma.

The patient made a good recovery. Immediately after the operation she had little or no use of the left limb but function returned within two weeks.

The second case reported was that of a man of 40 years who complained of difficulty in urinating and paresthesia of both extremities.

On neurological examination the reflexes of the arms were found to be normal, as were also the pupils. No abdominal reflexes could be elicited except in the upper quadrant. The cremasteric reflexes were exaggerated, particularly on the left side where clonus was present. No Babinski was obtained, but it had appeared. Tactile sensation was impaired below the level of the umbilicus. Temperature sense was lost in the entire right leg and on the left side along the outside of the hip. The rest of the left leg was hypersensitive to heat and cold. Blood and spinal fluid Wassermann tests were negative.

Operation revealed an endothelioma. This was removed and the patient recovered.

The third case discussed was that of a woman of 25 years who was operated upon by the author for spinal cord tumor ten or twelve years ago. Her symptoms consisted of a gradually developing paresis of both extremities. The X-ray showed a number of exostoses on the humerus, femur, and tibia. Operation revealed a bony tumor on the left side of the fourth dorsal vertebra. The patient made a satisfactory recovery.

JOHN MITCHELL, M.D.

SURGERY OF THE NERVOUS SYSTEM

Bruening, F., and Forster, E.: Peri-Arterial Sympathectomy in the Treatment of Vasomotor-Trophic Neuroses (Die periarterielle Sympathektomie in der Behandlung der vasomotorisch-trophischen Neurosen). *Zentralbl. f. Chir.*, 1922, xlix, 913.

Periarterial sympathectomy is recommended on the basis of a case in which the adventitia of the right brachial artery immediately below the axilla was excised for a distance of 8 to 10 cm. because of a severe vasomotor-trophic neurosis of the right hand associated with severe pain and refractory to every form of treatment. After a short time there was complete return of function. **HARRIS (Z).**

Davis, B. F.: Repair of the Peripheral Nerve. *Minnesota Med.*, 1922, v, 414.

The author describes the regeneration occurring in repaired nerves as shown by previous investi-

gators, and compares the nerve system to a conduit containing insulated wires. If the distal segment of a nerve is rotated on its axis the motor fibers may proceed down sensory pathways or the sensory fibers down motor pathways and thus become lost.

In the process of nerve regeneration the neuraxes arise from intact proximal nerve fibrillae and cross the suture line toward the periphery in protoplasmic bands which arise by proliferation of the cells of the neurilemma. These neuraxes bridge the gap and replace the original nerve trunk. The point of nerve section, if adequate suturing has been done, is bridged and practically restored to normal within four weeks.

Only three methods for the operative repair of peripheral nerves are worthy of consideration: (1) end-to-end suture, (2) the so-called cable graft, and (3) the fascial tube.

End-to-end suture is the best method. For this procedure the ends of the nerves must be brought together. Coaptation may be facilitated by freeing the nerve ends from their beds for some distance, changing the course of the nerve, flexing the joints and adducting the limbs, or suturing the fibrous ends of the nerve as closely together as possible with the arm flexed and then gradually straightening the arm to stretch the nerve so that the ends may be brought together at a second operation.

The average distances gained by these methods in different nerves are as follows: ulnar nerve, 3 to 10 cm. depending upon the method used; median nerve, 2 to 9 cm.; musculospiral nerve, 2 to 10 cm.; sciatic, internal, and external popliteal trunks, 3 to 10 cm.

In a two-stage operation more distance can be gained.

Points to be borne in mind in the use of end-to-end suture are:

1. The ends of the severed nerve should be cut off above the scar tissue.
2. The suturing should be done with fine waxed silk or fine plain catgut.
3. As a rule the sutures should be passed through the epineurium only, but when the nerve is large one or two may be passed through the nerve trunk.
4. The nerve ends must not be forced together too closely, but should be approximated gently.

The cable graft method consists in transplanting a segment of one or more sensory nerves to fill in the

gap. Its disadvantages are that two incisions and two suture lines are necessary; the nerve may regenerate past the first suture line and become blocked by fibrous tissue at the second, a second operation thus being rendered necessary. The removal of tissue from its natural location and blood supply and its transplantation to another location is often followed by necrosis of the transplant.

The use of a fascial tube is rarely necessary. If the tube is long it is apt to become transformed into scar tissue before the nerve regenerates.

If no function returns in from three to six months a surgical examination should be made because if the muscle is left inactive too long it may degenerate. At this operation it will be possible to determine whether the neuraxes have crossed the lines of suture and are growing distally. This is done by Malone's method, a method based on the fact that stimulation of a sensory or mixed nerve causes reflex stimulation of the respiration. If no response occurs, the nerve should be cut and resutured.

Failure of growth may be due to cicatrization, improper technique, hæmorrhage, or cyst formation. Fat and fascia wrapped about the suture line usually cause cicatrization. In the technique care should be taken to avoid twisting the nerves, too tight suturing, and excessive tension on the suture line. If only part of the nerve has failed to regenerate only that portion should be resected and repaired.

MARCUS HOBART, M.D.

MISCELLANEOUS

CLINICAL ENTITIES—GENERAL PHYSIOLOGICAL CONDITIONS

Green, T. M.: Traumatic Asphyxia. *Surg., Gynec. & Obst.*, 1922, xxxv, 129.

Traumatic asphyxia is brought about by compression of the chest and abdomen which is continued over an extended period of time and causes suspension of the respiratory function. It is a rather rare condition.

The reported cases exhibit certain striking and more or less constant characteristics. The discoloration of the skin, which varies from dark red to purple and may be discrete or confluent, covers the face and neck and sometimes extends as far down on the chest as the third rib. Other phenomena frequently associated with the condition are brief or prolonged unconsciousness, respiratory or cardiac depression, pulmonary engorgement associated with râles, and the expectoration of blood. Convulsions are not uncommon and occur not only with the resumption of consciousness, but during several days thereafter.

The treatment consists in the use of stimulants, oxygen, and artificial respiration. Many cases show the so-called "contusion pneumonia" about the third day. The prognosis as to vision should be

guarded since optic atrophy and opaque patches of the macula have been reported.

H. A. MCKNIGHT, M.D.

Serdjukoff: A Case of Suppurating Abscess Due to the Introduction of Saliva under the Skin (Fall eines kuenstlichen eitrigen Abscesses durch Einfuehrung von Speichel unter die Haut). *Deutsche Ztschr. f. Chir.*, 1922, clxxi, 134.

A soldier, 23 years old, allowed a civilian to inject saliva under the skin of his left thigh and soon thereafter became ill. On the seventh day he reported at the hospital with a temperature of 39 degrees C. and a pulse rate of 100. On the left thigh at the level of the flexure of the knee was a swelling under the skin measuring 18 by 7 cm. The skin over it was dark red and in places discolored bluish-red or rose color. Fluctuation and gaseous crepitation under the skin were noted. There were two distinct puncture wounds like those due to the needle of a Pravaz syringe.

When the abscess was opened foul-smelling gases and almost a glassful of turbid, purulent fluid and shreds of cellular tissue was evacuated. Examination of a smear showed abundant saliva and leucocytes, some flat epithelial cells, very many hæmatoidin crystals, and various cocci and bacilli.

Cultures demonstrated the presence of bacillus subtilis. During the first week following the operation there was a high fever but the subsequent course was afebrile. The healing of the wound was strikingly slow. The patient was discharged after ninety-two days. Boer (Z).

BLOOD

Hyford, W. H.: A Simplified Apparatus for the Transfusion of Blood by the Citrate Method. *Surg. Gynec. & Obst.*, 1921, XXXV, 149.

The needle used is a No. 13 gauge with the syringe end filed off. A piece of heavy rubber tubing 1 in. long and of $\frac{1}{8}$ -in. caliber connects it to the lowest point of an Erlenmeyer flask. An L-shaped piece of glass tubing with a glass bulb filled with cotton is inserted into the cork. Distal to this is an ordinary rubber tube with a mouthpiece.

When the needle is inserted into the vein, negative pressure in the flask produced by suction at the top draws the blood directly into the citrate solution without exposing it to the air. After a sufficient quantity of blood has been withdrawn the needle is taken out and a few drops of citrate solution are drawn through it to wash it free of unclotted blood. The same needle is then inserted into the recipient's arm, the mouthpiece detached, and an air pump substituted. H. A. McKnight, M.D.

BLOOD AND LYMPH VESSELS

Durante, L.: Traumatic Arteriovenous Aneurism of the Radial Vessels (*Sull' aneurisma traumatico arterio-venoso del vaso radiale*). *Riforma med.*, 1922, XXXVIII, 873.

Traumatic aneurism of the radial artery is rare, constituting only about 1.7 per cent of all surgically treated aneurisms and about .09 per cent of arteriovenous aneurisms. About 70 per cent of radial aneurisms occur in the inferior third, and 30 per cent in the upper two-thirds, of the forearm.

In the treatment complete extirpation of the aneurism sac is always to be preferred to quadruple ligation as the latter does not prevent recurrence. The best time to operate is about forty days after the development of the aneurism, when inflammation has subsided and the aneurism is fully formed.

Durante reports the case of a boy 15 years of age whose wrist was cut by a piece of glass. About twenty days later a rounded projection appeared at the site of the healed wound and slight paresis of the thumb developed. The tumor was in the trajectory of the radial artery and about 4 cm. from the apex of the styloid process of the radius.

At operation the aneurism sac was found to originate from the ulnar side of the radial artery. The two accompanying veins were adherent to the opposite arterial wall. The artery and veins were separately ligated centrally and peripherally and the isolated sac was then completely extirpated. The sac measured 5 by 3 cm.

This aneurism belonged to Banti's third type of arteriovenous aneurisms, an "arterial aneurism with aneurism varices," which corresponds to Brown's varicose aneurism with arterial cyst.

W. A. BRENNAN.

Lisizyn: Operative Arteriolysis and Its Rationale (*Die operative Arteriolysie und ihre Begründung*). *Wien. Chirur. u. gynaek. wochenschr.*, 1922, L, 37.

The author has observed frequently that gunshot injuries in the vicinity of large vessels but not causing direct vascular injury may produce extensive claudications causing severe peripheral trophic injury with loss of nerve function. The peripheral pulse becomes scarcely perceptible.

In a case of this kind which was due to a gunshot fracture of the radius and in which the trophic disturbance in the affected hand was very marked Lisizyn did an operative arteriolysis, that is, he freed the radial artery from the surrounding cicatricial tissue for a distance of 6 cm. The artery immediately became filled with blood, the peripheral pulse again became powerful, and in two months all of the trophic disturbance had disappeared entirely.

At examination nineteen months later the hand was found to be normal. PETROW (Z).

Koyano, K.: Clinical and Experimental Thrombo-Angiitis Obliterans. *Acta schol. med. univ. imp.*, Kyoto, 1922, IV, 501.

Thrombo-angiitis obliterans is a condition occurring most frequently in middle-aged men and causing symptoms such as coldness and lessened sensibility of the extremities followed first by the so-called claudicatio intermittens and finally by gangrene of the terminal members with severe pain. Buerger asserts that in the acute stage there is a certain morphological alteration in the blood vessels which is unique and specific for this disease, not having been seen in thrombosis due to other causes. The "often associated" thrombophlebitis of the superficial veins and the "cutaneous nodules" which are a characteristic manifestation in many of Buerger's cases, are rare in the author's cases among the Japanese.

The so-called purulent focus and giant-cell foci were found in an occluded superficial vein in only one case, and the question still remains whether this is the chief alteration in the primary stage or the subsidiary lesion in the later stage.

A further alteration, the purulent focus or the precursor of the miliary giant-cell focus, is to be seen in the gangrene following "grippe," as well as in the clot which is formed experimentally by the intravenous injection of collargol associated with ligation of the local vessel.

In various experiments to obtain a histologic alteration with giant-cell foci in a thrombus under the influence of pathogenic bacteria the results were negative. H. A. McKnight, M.D.

Bull, P.: Embolic Gangrene of the Extremities, Particularly the Lower Extremities (*Embolische Gangraen der Extremitäten, besonders der unteren*). *Nord Med Tidskrift*, 1922, lxxxiii, 137.

Bull discusses the disease picture of embolic gangrene of the lower extremities on the basis of eight cases. The causes of the embolism are:

1. Thrombosis of an artery occurring centrally from an embolus due to arteriosclerosis or aneurism.

2. Thrombus formation in the left heart. This is by far the most frequent cause of embolism as shown by the fact that in half of the cases there was an old valvular defect. Thrombi in the heart are present also, however, in myocarditis. A large number of cases of embolic gangrene can be traced to infectious diseases.

3. Thrombus formation in the right auricle or the veins of the systemic circulation. This condition depends upon an open foramen ovale. The foramen ovale is very rarely open, however, though usually in the cadaver it can be easily penetrated by means of a probe. By pressure of the circulation one wall is forced against the other so that no blood can pass through it. Accordingly, only thrombi in the left heart come into consideration as the cause of embolism. The location at which the embolus becomes stationary depends on its size. The occurrence of gangrene depends on whether a collateral circulation develops. When the heart is normal a collateral circulation is easily established, but in persons whose cardiac activity is much reduced the blood pressure in the peripheral arteries is decreased considerably and a stagnation thrombus may form. This secondary thrombus, which forms in a few hours, blocks the collaterals. A typical case is as follows:

A patient, young or old, suffering from cardiac defect or in the first stage of convalescence after an acute infectious illness, is suddenly seized with severe pain in one or both legs. At the same time or in the course of a few hours he notices a diminution of sensation, the leg becomes white and cold, and muscle function is decreased so that soon the leg cannot be moved. The pulse in the chief artery is either entirely absent or very much weaker than that on the other side. Often the sensitive distension can be felt in the artery, and above this point the pulse is normal. At the end of only a few hours these symptoms are so pronounced as to be recognized as signs of death of the part. The pain remains as severe as before. If the embolus is situated at the bifurcation of the aorta, there will be pain also in the back and the stomach in addition to bladder symptoms in the form of incontinence and hematuria. If the thrombus lies obliquely, it may slip entirely into the iliac artery or become partially loosened, thus causing obstruction further down.

From his study of autopsy reports for twenty-six years the author has found that by no means all cases of blocking of the aorta lead to gangrene of the

lower extremities; collateral circulation is more easily established here than further down, by means of the subclavian, internal mammary, superior and inferior internal epigastric, intercostal, lumbar, and circumflex iliac arteries.

The prognosis is dependent not only on the local processes, but also on the occurrence of embolism in other vital organs, especially the brain, kidneys, and intestines. If gangrene has developed, the seat of the embolus responsible must be sought considerably above the line of demarcation. In gangrene of the foot and lower third of the leg it is located in the popliteal artery; if the gangrene extends as far as the upper third of the leg, it is in the femoral artery; in gangrene of the thigh, it is in the iliac artery or the aorta.

In a number of cases the embolus has been successfully removed and the artery sutured at early operation (at the latest ten hours from the beginning), whereupon the circulation was immediately restored and the limb saved. During the operation compresses dipped in sodium citrate solution as recommended by Key are used. The surgeon's hands and the instruments are also rinsed in this solution.

In order to remove the secondary stagnation plug, which may be extraordinarily long, traction must be carefully applied to the embolus with simultaneous stroking from the periphery upward over the artery. If the thrombus tears during this procedure, the artery must be opened further down and washed out from below with sodium citrate solution. If the blood does not flow out in a full stream after the artery has been opened from the center an obstruction is probably situated further up and the artery must be opened at a higher level. After suturing of the vessel one must assure oneself that the pulse has returned at the periphery.

The article is concluded with detailed histories of eight cases.

PORR (Z).

Homans, J.: Varicose Veins and Ulcer: Methods of Diagnosis and Treatment. *Boston M. & S. J.*, 1922, clxxxvii, 258.

The main saphenous vein has fifteen to twenty bicuspid valves. The femoral vein usually has one valve above the entrance of the great saphenous. The superficial veins of the leg anastomose with the deep veins by a series of valve-containing vessels which pierce the fascia. The deep veins are almost never varicose and will carry the load of the superficial circulation.

Varicose veins are associated with occupations requiring heavy lifting, continued standing, and conditions that increase intra-abdominal pressure, such as pregnancy. They occasionally appear at puberty and in early life, presumably because of malformations of the walls or the valves. The most intractable form arise after phlebitis which leaves defective valves and thickened walls.

As the valves fail the veins dilate and nutrition becomes disturbed. Scar tissue replaces the smooth muscle and elastic fibers. Tortuous and sacculated

areas are formed. Calcification may occur. The blood stagnates and the long column of blood increases the pressure on the walls. The vein may rupture.

Varicose ulcer, the most common complication, results from injury plus infection in poorly nourished skin and subcutaneous tissue. Pigmentation appears first at the point of greatest stagnation and poor nutrition upon the front and inner sides of the lower leg.

The simplest test of incompetency of the valves is the Trendelenburg test, viz., suddenly lowering a leg that has been emptied of blood by elevation. If the finger is pressed over the saphenous opening while the leg is elevated the vessels remain collapsed when the leg is lowered and fill with a shock when the pressure is released. If the finger pressure is not released and the vein fills rapidly from below, there is leakage of the valves in the perforating branches to the deep veins. The condition of the lesser saphenous vein may be tested similarly by applying pressure at the level of the knee.

The most common type of large, dilated, tortuous varicose veins is most evident on the inner side and the front of the calf. The Trendelenburg test is positive. The complicating ulcer is easily cured. The perforating veins are usually competent.

Postphlebotic varix, a less frequent type, is diagnosed on the basis of a history of phlebitis, the presence of small sclerosed veins, and in advanced cases, extensive diffuse induration and edema of the calf. The filling test usually shows rapid filling below the constriction. A complicating ulcer, often diffuse or multiple, is usually present and may be the first sign to attract attention to the condition. The ulcers may be mistaken for syphilitic ulcers. This varix is intractable to palliative treatment and almost invariably requires excision. Operations upon postphlebotic varix and ulcer are difficult and show a relatively low proportion of cures.

A rare type includes dilatation of the lesser saphenous vein alone and of the vessels of the outer leg and thigh, independent of the saphenous system. Palliative treatment never alters the basic varicose condition and is effective only while maintained. This consists of compression by means of elastic or canvas stockings, gause, and flannel rollers, careful soap and water cleanliness, and rest in bed. For ambulatory treatment a bandage of Unna's paste is useful.

The essentials of operative treatment are thorough eradication of the upper end of the great saphenous vein, perfect wound healing, which is favored by gentle operative handling of the tissues, fine ligatures, a dry wound free from dead spaces, and the treatment of ulcers to prevent their recurrence. The main saphenous trunk should be stripped to below the knee. Excision of the distended veins of the calf controls incompetent perforating veins. When the perforating veins are competent, excision

of the enlarged superficial veins above will cure the ulcer. A very large and indurated ulcer may be excised, the wound edges approximated, and the remaining raw surface covered with a skin graft. Incompetent perforating veins in the calf must be ligated and the ulcer dissected to sound tissue. It may be necessary to perform the operation in several stages.

Acute phlebitis in veins previously normal should be treated conservatively. Convalescence should be prolonged and return to active life slow.

Operations on thrombosed veins near the saphenous opening may be followed by pulmonary embolism. Organization of a clot does not lead to obliteration of the varix. Phlebitis is apt to recur. Varicose veins affected by acute phlebitis should be excised. In operations on thrombosed veins the adherent inflamed skin must be removed. Operations for the removal of clotted varicose veins are remarkably satisfactory and will save the patient time and suffering. WALTER C. BURKET, M.D.

SURGICAL DIAGNOSIS, PATHOLOGY, AND THERAPEUTICS

Goodman, H.: Ulcer of the Leg: Its Localization as a Point of Differential Diagnosis. *Arch. Dermat. & Syph.*, 1922, vi, 179.

Of sixty-four patients with ulcers of the lower part of the legs, twenty-five had an ulcer on the right leg, twenty-six an ulcer on the left leg, and thirteen, ulcers on both legs.

In the cases of ulcer on the right leg the Wassermann reaction was positive in thirteen, anti-complementary in two, and negative in ten. A positive clinical diagnosis of syphilitic ulcer was made in only four cases.

In the cases of ulcer on the left leg the Wassermann reaction was positive in six, anti-complementary in one, and negative in nineteen. Clinical diagnosis was impossible in every case. The non-syphilitic ulcers consisted of circular, varicose, diabetic, tuberculous, senile, and other types of ulcers. Two chronic ulcers showed cancerous degeneration. Chronic ulceration of the leg is associated with periostitis and changes in the deep arteries of the leg.

In the cases of ulcers on both legs the Wassermann reaction was positive in two. A clinical diagnosis of syphilitic ulcer could not be made in any case.

These cases indicate that ulcers of the right leg are more apt to be syphilitic than those of the left leg. There is nothing in the nature of the syphilitic process to account for this. In cases of ulcer of the left leg the Wassermann test was negative in 73 per cent as compared with 43 per cent in cases of ulcer of the right leg. In the author's opinion the explanation of the predominance of non-syphilitic ulcers on the left leg is to be found in the anatomical arrangement of the veins and arteries of the two lower extremities, the left leg being more often

subjected to diseases dependent on retardation of the venous circulation. In 90 per cent of all cases of thrombophlebitis the thrombosis occurs in the left leg, milk-leg is more common in the left leg, and in cases of failing circulation the left leg is more apt to become oedematous than the right leg.

WALTER C. BURKET, M.D.

ROENTGENOLOGY AND RADIUM THERAPY

Mavor, J. W.: The Effect of the X-Ray on the Germ Cells. *J. Radiol.*, 1922, iii, 320.

Experiments were carried out to ascertain the specific effect of roentgen rays upon the dividing cell and the modification of the germ cells by external means. Small fruit flies were used because their egg cells have been minutely studied and accurate knowledge has been gained relative to their method of division and development into new individuals. The life cycle of this fly is described at considerable length and the laws of Mendelian inheritance as applied to it are emphasized.

Preliminary experiments showed that the sterilization dose of roentgen rays was small as compared with the lethal dose for female flies, so that flies could be sterilized without apparently affecting them in any other way. The females were rayed with a dose just under the sterilization dose soon after they emerged from the pupa cases and then immediately mated in rearing bottles. In all experiments an equal number of control matings were kept under the same conditions as those under which the rayed pairs were kept. It was found that the offspring of the rayed flies differed both numerically and in inherited characteristics from those of the controls. These changes are explained on the basis of changes in certain of the chromosomes of the mitotic cells.

The author sums up the results of his experiments as follows:

A specific effect of the roentgen rays has been shown in the dividing germ cell which leads to a specific modification in the inheritance of the offspring.

ADOLPH HARTUNG, M.D.

Purcell, C. E.: An Interesting X-Ray of Study of a Foreign Body, Honey Locust Seed, in the Right Bronchus. *Kentucky M. J.*, 1922, xx, 529.

In the case reported a honey locust seed was presumably swallowed by a 2-year-old child. Aside from a violent fit of coughing lasting for several hours, no other untoward symptoms were noted for two days. The roentgen-ray examination proved negative although in a control exposure a similar seed placed under the patient was plainly visible. Examination of the throat revealed laryngitis, a condition which was considered a sufficient explanation for a slight rise in the temperature on the second day. At that time slight dyspnea and irritability also developed and the insistence of the child's parents that something be done led to a bronchoscopic examination under general anes-

thesia. The seed was discovered in the right bronchus and removed without difficulty. An uneventful recovery followed.

The conclusions drawn by the author from this case are as follows:

1. A foreign body in the air passages may not cause any symptoms during the first twelve hours.

2. When the presence of a foreign body is indicated by the history an exploratory bronchoscopic examination is justified. It can cause no harm if properly done.

3. It is justifiable to give a general anæsthetic in order to keep the child absolutely still and to relax the laryngeal structures to the utmost.

4. It is best not to attempt to locate a foreign body unless bronchoscopic extraction is contemplated.

ADOLPH HARTUNG, M.D.

Hubeny, M. J.: Positional Anomalies of the Gastro-Intestinal Tract. *J. Radiol.*, 1922, iii, 364.

It is generally accepted that there are variations of position and relationship of the abdominal viscera from the usual conception of the normal. The roentgen examination reveals many such variations. The author does not discuss positions brought about by inflammatory reactions, but considers the subject from the standpoint of embryology, describing at some length the migration, rotation, descent, and fixation of the various parts of the gut during embryonic life. Variations in these normal processes may result from excess or defect.

The cases in which the first two feet or so of the jejunum pass to the right are worth notice as this condition has a special bearing on the technique of the no-loop gastrojejunostomy as practiced in the Mayo operation and calls for a reversal of the method of placing clamps on the jejunum. In some cases the first and second parts of the duodenum are situated unusually far to the right.

In the colon there are many opportunities for variations. As regards migration, the intestine may remain either in whole or in part outside of the abdominal cavity or pause at any point along its developmental path. The cæcum may be found on the left side.

The rotation of the colon may be deficient or excessive. In the first event the ileum enters from the right and posteriorly, and in the latter, anteriorly. In abnormal rotation combined with fixation the ileum frequently becomes kinked.

In its normal position the cæcum is said to be in the right iliac fossa, resting on the iliac fascia, covering the iliopsoas muscle, above the outer part of Poupart's ligament, about half below and half above the level of the anterior iliac spine. Minor variations, however, are usually found. There may be hypodescent or hyperdescent. In hypodescent the cæcum lies anywhere between the region of the liver and its normal site. If it goes beyond its normal position into the pelvis or develops such proportions that it is possible for it to lie in the pelvis, it is said to be hyperdescended.

The process of fixation is a physiological fusion of contiguous peritoneal surfaces and offers numerous variations. Harvey divides these into hypofixation and hyperfixation. When hypofixation is present a mesenteric may be found, when this is combined with a disproportionate linear development of the large bowel, many positions of the colon, either in part or in whole, can be expected.

The chief sites for variations are the cecum, hepatic flexure, transverse colon, splenic flexure, the descending colon at the level of the iliac crest, and the sigmoid. The splenic flexure is of particular interest as it occasionally runs up as high as the diaphragm, and when filled with food may simulate a tumor mass on palpation and percussion; sometimes gas may replace the bowel contents causing tympany, and both these conditions may be misleading if the location of the colon is not known.

ADOLPH HARTUNG, M.D.

Witherbee, W. D.: The Dosage and Technique in the X-Ray Treatment of Goiter, Tuberculous Glands of the Neck, Tonsils, and Adenoids. *Am. J. Roentgenol.*, 1922, n.s. ix, 514.

The factors used in the treatment of tonsils and adenoids are a 7 in. spark gap, a 3 ma. current, a 16 in. distance, four minutes' time, and a 3 mm. aluminum filter. This exposure is given at intervals of two weeks, the number of exposures depending entirely on the progress of the case. So far, in the author's experience, the average case has required from six to eight treatments. Careful observation and examination of the throat during treatment are as essential as the factors of the technique. On account of the sensitiveness of the skin, the dosage for children should be reduced proportionately according to the age.

The patient assumes the prone position with the head turned toward the side. The target of the tube is centered just behind the angle of the jaw, and the opening in the lead foil extends over an area 2 in. wide from just above the external auditory meatus down to the hyoid bone.

In the treatment of goiter the same factors are used with an area of exposure extending from just above the external auditory meatus down to the lower level of the thyroid gland and transversely to the center of the middle lobe. As in the treatment of the tonsils, each side is exposed for four minutes, grosser treatment being thus given to the gland, the tonsils, and the adenoids at the same time. An examination of the throat in cases of exophthalmic goiter almost invariably reveals chronic infection of the mucous membrane and tonsils. It is therefore essential that the infected tonsil and mucous membrane be included in the area exposed in order to rid the patient of an infection which may be indirectly the cause of the toxic symptoms. The number of treatments varies in these cases and is regulated by the basal metabolism determinations.

The same dosage and technique may be used in the treatment of tuberculous glands of the neck. The

area of exposure includes not only the tuberculous glands but also the tonsils and adenoids, for the reason that it is more than probable that the primary focus of infection is, or was, in the tonsil. The roentgen-ray effect on the follicles and crypts of the intratonsillar nodule and the follicles throughout the mucous membrane of the pharynx is similar to that produced on the tonsillar tissue, namely, atrophy due to the destruction or absorption of the immature lymphatic cells in the follicles. Thus it lessens the depth and distortion of the crypt and at the same time causes an eversion and evacuation of its contents. In thirty of thirty-six cases hemolytic streptococci and staphylococci were eliminated from the crypts four weeks after one massive dose of the roentgen rays.

Investigations of a large number of cases of tuberculous glands of the neck treated with the roentgen rays prove not only that the treatment is harmless but also that the tonsils and adenoids and follicles of the mucous membrane have remained atrophied. In some instances three years have elapsed since the last roentgen-ray treatment. In the more severe infections of the glands of the neck it has been necessary to give as many as forty treatments. This has been done without the slightest indication of impairment of the functions of the normal thyroid, parathyroid, pituitary, or parotid glands.

ADOLPH HARTUNG, M.D.

Stone, W. S.: The Present Field for the Use of the X-Rays and Radium in the Treatment of Malignant Neoplasms. *Am. J. Roentgenol.*, 1922, n.s. ix, 502.

During the last seven years the author has had under observation over 10,000 cases of neoplastic disease, the majority of which had been treated with the roentgen rays or radium. He therefore feels that he has arrived at a position in this work from which he may discuss the surviving old, the established new, and the still experimental phases of radiotherapy as applied to malignant neoplasms.

As to the surviving old phases, radiotherapy merits consideration as the treatment of choice in selected cases of cancer in the curable stage either alone or as an adjunct to operation. In all the well-advanced cases and in those designated as being in the borderland of operability, in which formerly a radical operation was attended by a high primary mortality and a low percentage of cures, the surgeon's responsibility is not fulfilled until all the aid which the roentgen rays and radium can supply has been enlisted. Even in diagnosis the therapeutic test of irradiation will often render an exploratory operation unnecessary.

Of the established new phases of radiotherapy certain facts relating to the conditions upon which the effects of irradiation depend are generally recognized. Tumor cells in general respond more promptly to the action of roentgen rays and radium than the normal tissues, and different types of tumors or even tumors of the same type in different parts of

the body show wide variations. The size and extent of a growth have some bearing upon the effects of irradiation but, next to its type, the condition of the tumor and its neighboring tissues determines the success or failure of such treatment more than any other factor. Infected tumors respond unfavorably. A tumor with altered nutrition in a subject whose general condition may still be apparently good may soon become so necrotic from the irradiation that the terminal period of the disease is prematurely initiated. Fibrosis resulting from an operation or a previous irradiation makes a tumor less responsive.

The presence of normal neighboring tissues and their preservation by the avoidance of overdosage constitute important factors in the process of cure.

Regarding the relative merits of the roentgen rays and radium, clinical observations seem to indicate that the effects of the roentgen rays and the gamma rays of radium are the same. The effects of each depend upon the power of absorption possessed by the tissues for rays of a certain wave length.

A review of the material from which these general facts were obtained permits the presentation of numerous clinical fields in which, although the response to irradiation varies widely, the results indicate that the roentgen rays and radium have a very specific applicability. Lymphosarcoma, metastatic teratoid tumors of the testicle, certain embryonic tumors of the kidney in children, and a type of bone sarcoma recently described by Ewing as endothelial myeloma represent types of neoplasm which promptly respond either to the gamma rays of radium or the roentgen rays after a single application. Other tumors, such as mixed tumors of the parotid, frequently respond promptly but the results vary. Basal-cell epithelioma is very susceptible to radiotherapy. There is a large group of ulcerating growths of the skin and mucous membranes in which, by the additional use of the beta rays and by implantation of radium into the tumor tissues, results have been obtained which in many instances are better than those given by the knife or cautery. In uterine cancer radium has achieved its most brilliant success as a curative agent, especially in lesions of the cervix, in which the applicability of surgery is now very limited. A most conservative statement would be that any uterine lesion requiring more than a simple hysterectomy for its cure should be treated with radium. There is little evidence of practical accomplishment in cancer of the esophagus and stomach. Primary results in tumors of the bladder, because these growths are frequently of the papillary and non-infiltrating type, justify the expectation that radiotherapy will have a definite curative value. There is already no doubt of the palliative value of radium. There is also much evidence of its palliative value in cancer of the prostate, but special care is needed in the selection of cases. Cancer of the rectum has proved a more difficult problem than first results indicated.

The applicability of the roentgen rays and radium to inoperable and recurrent lesions is doubtful.

However, following the proper selection of cases some of the most advanced growths have yielded to irradiation in a remarkable way. As with the primary tumor, success depends upon the type, size, extent, and condition of the growth. Regarding metastases, the author states that he has been fortunate in observing favorable results following the application of the gamma rays of radium to bone metastases from mammary cancer. There appears to be more than an even chance of relieving pain, and in a few instances the repair of the lesion as shown in the roentgenograms and a temporary restoration of the general health have justified the efforts.

The prophylactic use of irradiation before and after operation is, perhaps, one of its most important applications. Certain cancers of the breast thus treated have apparently been cured, others have regressed, and in some cases inoperable conditions have been made operable. Such observations lead to the conclusion that during the early stages of the growth the use of these agents is indicated in conjunction with operation. Their postoperative application is becoming a routine procedure, and it is reasonable to believe that an increased number of permanent cures will result. The pre-operative treatment of mammary cancer is much less popular, but it appears to the author to rest upon a more scientific basis than the postoperative application. From his own observations he believes that the injurious effects of the operation are thereby minimized. The general adoption of pre-operative treatment in mammary cancer will soon show, he believes, that the field of applicability of the radical operation should be much restricted.

The use of the roentgen ray and radium in the treatment of primary bone sarcoma is in the experimental stage, but a few facts have been definitely established, and results suggest that, with greater accuracy of diagnosis, an improved technique, and more frequent resort to the use of these agents prior to operative procedures, more substantial progress will be made. In the malignant osteogenic tumors, which are usually of the periosteal type, clinical results have been practically negligible except in one or two instances. In the giant-cell tumors, or relatively benign giant-cell sarcoma, varying in type from those which closely resemble the osteitis fibrosa or bone cyst to those in which local extension and recurrence show considerably malignant qualities, progress has been both encouraging and disappointing. Radium has been applied to the wound after curettage to prevent recurrence, and in numerous instances the local recurrences after operation have completely disappeared following surface irradiation or the implantation of radium into the tumor.

In conclusion the author states that in addition to supplanting operation as the method of choice for a number of types of malignant neoplasms, the use of irradiation has so limited the field of applicability of the radical operation in numerous others that the latter is becoming a questionable procedure.

The use of irradiation, therefore, has made necessary greater refinement in diagnosis. To this end the patient's interests are best conserved by obtaining the combined knowledge of the surgeon and the radiologist.

ADOLPH HARTUNG, M.D.

Merritt, E. A.: Recent Experiences in the Treatment of Mammary Carcinoma by Means of Heavily Filtered X-Rays. *J. Radiol.*, 1927, 10, 173.

During the past year the author has been observing the effects upon mammary carcinoma of roentgen therapy in which 3 ma. of current were passed through a Coolidge tube at a 9-in. gap, 20- and 12-in. distances, and a 1/8-mm. copper filter for a period of three hours for each area and through three or more portals of entry. In the beginning, only postoperative recurrent cases were thus treated. All of the affected side, both front and back, the supraclavicular and axillary spaces, and, when deemed best, the opposite breast, were rayed. Thus a patient received nine or more hours of roentgen ray treatment given as rapidly as possible. It was found, however, that for the average patient a maximum of one and one-half hours was sufficient for any one day. The production of roentgen sickness was a factor which influenced the length of exposure at a single sitting.

The effects upon the skin varied from a roughened, bean-like elevation of the epidermis to actual vesiculation with, in several instances, slippings of the skin, but the ultimate result was a varying shade of brown with a smooth, somewhat thickened integument. In the blacks the skin took on a deeper pigmentation. Palpable tumors responded early and without a single exception. Their decrease in size and induration was synchronous and progressive, beginning within ten days. Recurrent nodes the size of small marbles disappeared in a month, leaving no trace whatever. The rapidity with which palpable and perceptible lesions in frankly inoperable types disappeared was highly encouraging and justifies the hope that continued experience along these lines will mark a new era in medicine. Even the temporary removal of demonstrable lesions in inoperable mammary cancer by a method comparatively free from hazard, pain, and a prolonged period of invalidism, is assuredly an innovation and should command general and serious consideration.

Certain of the cases treated showed changes of the lung structure in the nature of a parenchymatous infiltration. Subsequently this underwent regression. Others showed the formation of a pleural exudate with symptoms of pleurisy of a mild type. In still others there were no demonstrable effects upon the lungs.

In certain unfavorable cases the technique followed unfortunately increased rather than decreased the patient's suffering by way of defense, the author states that they were all postoperative cases and, in his opinion, not properly selected as operable types.

His experience leads him to the conclusion that, as a general rule, a woman afflicted with cancer of the breast with extramammary adenopathy may ex-

pect better results from the roentgen-ray therapy administered as just described than from any other form of treatment.

ADOLPH HARTUNG, M.D.

Boggs, R. H.: Ante-Operative Radiation of Carcinoma of the Breast. *Am. J. Roentgenol.*, 1927, 13, 12, 508.

A sufficient number of cases of carcinoma of the breast have received ante-operative radiation with such favorable results as to justify advocating pre-raying of every case of cancer of the breast, regardless of the stage of the disease. If this is done, more lives will be saved and much suffering will be prevented. The surgeon will then be operating on a breast the greater part of whose cancer tissue has been destroyed by radiation and the remaining cells of which are in a latent condition. The lymphatic channels, instead of being wide open, will be partly blocked and there will not be the same danger of metastasis.

In estimating the value of ante-operative raying it is necessary to determine the structural type of the cancer under treatment. The prognosis is different in scirrhus, adeno-, and medullary carcinoma, and depends also on whether the growth is circumscribed or infiltrating. The stage of the disease and the extent of the metastases must be taken into consideration before it can be decided whether a cure is to be expected or whether palliation with retardation is all that can be hoped for.

Postoperative radiation offers little as compared with pre-operative radiation. If all of the cancer cells have not been removed surgically—and it is safe to assume that this is true in over 20 per cent of the cases—irradiation afterward does not offer the same opportunity of eradicating the remaining cells as the same procedure before operation, for experience has taught that traumatized malignant tissue responds less favorably to radiotherapy. Numerous authorities are quoted to support the author's contention.

The treatment of carcinoma of the breast by embedding radium throughout the breast and the adjacent glands, preceded by surface applications of radium and heavy filtered roentgen rays, makes radiation as thorough as amputation with the most careful glandular dissection. After such radiation removal of the breast may be indicated, but a radical operation may not be necessary.

The reason for advocating the use of radium by the method described is that early cases can be clinically cured without opening the lymphatic channels, and if operation is indicated later it will be performed when the cancer cells are nearly all destroyed, that is, when cell proliferation has been checked and only latent cancer cells remain. In some cases embedding radium would at least take the place of operation, but until more data are at hand it seems advisable to operate between three and eight weeks after radiation, depending upon the case. In late cases the radiation described is certainly superior to any form of operation per-

formed primarily, and if the breast is removed the axilla should rarely, if ever, be opened following the radiation.

The lethal dose has created much discussion, and the radiologist's success depends upon his ability to give this dose without producing superficial ulceration or necrosis. For most types of cancer of the breast the erythema dose is seldom the lethal dose. In the author's opinion the lethal dose may sometimes be from three to six times the erythema dose. This is why he embeds radium in carcinoma of the breast in addition to giving deep therapy through the skin surface. By embedded needles very much more radiation can be given without serious injury to the uninvolved tissue. It is to be remembered that the implantation of radium, if sufficiently deep, in no way interferes with the application of full doses of deep roentgen rays over the surface. Roentgen rays are always applied as thoroughly as though no radium had been embedded.

No uniform technique has been established in deep roentgen-ray therapy. That adopted by the author is as follows:

The area to be treated, which includes the breast and all of the surrounding tissues in which lie the chains of lymphatics connected with the mammary gland, is divided into about twenty areas which are mapped out in detail. Roentgen rays are applied to two to four portals of entry each day until all have been covered. Five milliamperes of current and a 9-in. spark back-up are used at an 8-in. target-skin distance and the ray is filtered through 10 mm. of aluminum. From twenty to thirty minutes exposure is given each field. The axilla on the affected side is usually treated with a radium pack 6 by 6 cm., placed at a distance of 2 cm., the radium being filtered through $\frac{1}{2}$ mm. of silver and 1 mm. of brass, giving from 1,000 to 1,500 mgm.-hrs. Two to four weeks after the surface radiation, where cell proliferation has been checked, 10 mgm. radium needles are embedded about 1 cm. apart, usually thirty-five or more needles being used and from five to ten hours' exposure being given.

In conclusion, a case is reported in detail to show the marked benefit that may result from ante-operative irradiation even in advanced cases.

ADOLPH HARTUNG, M.D.

INDUSTRIAL SURGERY

Miller, S. R.: *Injuries by Electricity, Their Prognosis and Treatment.* *Internat. J. Surg.* 1922, XXIV, 267.

The volt is the unit of electromotive force; the ohm is the unit of resistance to the volt; the ampere indicates the amount of current delivered and is the volt divided by the ohm. The ampere determines the injury inflicted.

Resistance to the volt reduces the amperage and produces heat. If a high voltage is divided by many ohms, very little current is delivered but great heat is produced at the point of resistance, and this may

cause disintegration, charring, or incineration of the tissues. The resistance of the body is almost entirely in the cuticle. The exposed cuticle, because of its greater thickness and dryness, offers a higher resistance. A wet surface greatly reduces resistance and thereby permits greater amperage. Many physical conditions influence the resistance of the body. A high voltage overcomes a high resistance. The normal minimum resistance of the body to a low voltage is said to be 3,000 to 5,000 ohms. A person with exophthalmic goiter has a resistance of 1,000 to 1,500 ohms. The rapidity of the amperage and the part of the body receiving it are important factors in the lethal dose.

An alternating, intermittent current is more destructive to life than a direct current. Lower cycles seem more dangerous than higher cycles. Death results from cardiac paralysis, respiratory inhibition, lowered blood pressure with cerebral anemia, or molecular disintegration of the nerves and other tissues.

If the current passes only through the arm and upper cerebrospinal area and the heart escapes the circuit, continued persistent artificial respiration, even some time after apparent death, may restore life. A strong faradic current is a valuable adjunct to artificial respiration. Apply one electrode of the faradic current to the phrenic nerve and the other electrode to the phrenic nerve center of the diaphragm just above the ensiform cartilage. If the heart has been included in a current of sufficient potency to cause fibrillation of the cardiac muscle there is little possibility of resuscitation.

The current's first effect on the circulation is lowered blood pressure. Fibrillation of the cardiac muscle quickly follows. Artificial respiration will not resuscitate a heart after general fibrillation.

The dry body, without a good conductor connecting to the feet or elsewhere, has a very high resistance momentarily but a continued contact breaks it down to the minimum normal resistance. A high voltage does not mean necessarily that the subject injured received the full charge.

The author illustrates the lethal effect of potential currents by a description of the legal method of electrocution. One electrode is placed on the unshaven head and the other on the calf of the leg. The electrodes, wet with saturated salt solution, are molded to fit the part. The head, trunk, arms, and legs are securely fixed by broad straps to a chair to hold them during violent muscular contracture. The current is applied at the moment of maximum expiration. An alternating current of 1,800 volts is given for five to seven seconds, reduced to 250 volts for thirty seconds, raised to high voltage for three to five seconds, reduced to low voltage for sixty seconds, and finally raised to high voltage for a few seconds. The mind is blotted out at once. Death is painless. The body is not seriously burned. The pupils are suddenly and permanently dilated. There is lividity as in asphyxiation. The body receives 7 to 10 amperes.

The voltage of some of the common commercial wires is as follows:

Local telephone and telegraph, 4 to 30 volts; long distance telephone and telegraph, 200 to 300 volts; building lighting systems and household electrical devices, 110 to 220 volts; elevators, street cars, and heavy machines, 350 to 550 volts; and transmission wires from electrical power houses or hydro-electric plants, 10,000 to 70,000 volts.

Two cases of injury due to electricity are reported as follows:

Case 1. A lineaman, standing on the lower arm of a 22-ft. pole with two cross arms and holding the iron brace on one arm, climbed over the second arm to get a better position on the opposite side of the pole, and in so doing made contact with his head with a 11,000-volt wire on the top cross arm. His right thumb was burned practically off. The finger under a ring on his left hand was cooked to the bone and the palm and flexor surface of the wrist were cooked to the periosteum. An area of the scalp and outer table of the skull, 3 by 4 in., and two small areas of the deeper table were destroyed. The dry cross beam on which the man was standing paralyzed his legs. His weight pulled his hands loose and he fell to the ground. Artificial respiration soon restored normal breathing and saved his life. The high voltage passed only through his head and arms.

Case 2. A workman, holding a 110-volt light in one hand with a glove saturated with chemical solution for removing paint and standing on a floor flooded with the same solution, fell across a window sill. When removed a few moments later by fellow workmen he was dead. Artificial respiration applied for some time did not restore normal breathing. The voltage passed through the heart.

WALTER C. BURNET, M.D.

Reuter, F.: Another Fatal Case of Injury to the Skull from Excess Current (*Ein weiterer Fall von tödlicher Starkstromverletzung des Schädels*). *Zentralbl. f. d. ges. gerichtl. Med.*, 1922, 1, 362.

The author reports the case of a laundress who was killed in an attempt to clean a transforming chamber which was shut off by a grating and into which entered three unprotected rotary current cables of 5,000 volts. A short circuit immediately resulted. The dead body was discovered lying obliquely, face down, the head in contact with a ledge of bare metal.

The most important finding at autopsy was a 9 cm. square area of loss of substance in the temporal region. The skin defect was total. The hair of the head was singed. The bone, which was exposed, was in part charred and in part transformed into a porcelaine-like whitish mass composed of irregular vesicular formations. The dura showed three rather large holes which appeared as if they had been cut out with a punch and corresponded to the bony defect. The brain showed a necrotic area 2 cm. deep which corresponded to the angular and sphenomarginal gyri. In the middle of the back was

a sharply defined area of necrosis 7 cm. long and 1 cm. deep.

It is thus apparent that the fatal current entered at the head and went out at the back. The injury was due, not to direct contact, but to the passing over of an electric arc. The bone change was not caused by "gasification" of the calcium phosphate, but by evaporation or melting of this compound at the high temperature of 2,500 to 3,000 degrees C. The anatomical examination gave considerable support to this assumption in that a smooth transition was demonstrated from the simply charred diploe into the vesicularly changed bone substance. Experimental completion of such bony paths from anemic skull bones has not yet been accomplished.

SCHÖTTER (Z).

LEGAL MEDICINE

Implied Authority to Make Exploratory Incisions and Extend Operation. *King vs. Carney (OMA)*, 204 Pac. R., p. 270.

This was an action for damages for an alleged unauthorized operation. The plaintiff had been married twice and had one child by her first husband. After her second marriage she bore no children, but had several miscarriages. Wishing to correct this condition she called on defendant King, told him that her family physician had stated that her condition was due to laceration of the uterus, and said: "I want to be fixed so I can bear children, and we will never be happy without that."

The defendant testified that he made an incision in the plaintiff's abdomen and an examination in which he found that the ovaries were badly diseased; that there were many adhesions around the ovaries, intestines, and uterus; that the fallopian tubes were sealed, both ends being full of pus; and that on discovering the condition he removed the diseased organs and the contiguous infected tissues.

Up to this point the defendant and the surgeon who assisted in the operation were permitted to testify without objection. When the witnesses were asked questions tending to prove that the fallopian tubes, the ovaries, and the surrounding tissues were so badly diseased that it was necessary to remove them to preserve the plaintiff's life and health, and that it would have been dangerous to her life and health not to do so, objections were made and sustained by the trial court. The supreme court held, however, that the state of the pleadings warranted the introduction of testimony tending to show an emergency, and that the exclusion of this testimony constituted reversible error.

The plaintiff's specific direction to the defendant, "I want to be fixed so I can bear children, and we will never be happy without that," seemed to the supreme court to authorize the defendant not only to cure the condition if possible, but by clear implication to diagnose the case for the purpose of discovering for himself the exact cause of sterility and to make whatever exploratory incisions might be

necessary to accomplish this purpose. It is quite clear that making the initial incision in the plaintiff's abdomen was a proper and necessary step along this line and the mere fact that the plaintiff might have believed or had been advised by her family physician that her condition was caused by a laceration of the uterus did not relieve the operating surgeon of the duty of discovering for himself the cause of the physical defect he was called on to remedy.

In reversing the judgment the court held that the general directions of a patient to his surgeon authorizing him to perform an operation for the cure of a specific physical ailment not only authorizes the surgeon to operate, but also, by clear implication, authorizes him to diagnose the case for the purpose of discovering for himself the exact cause of the malady he is called on to treat, and to make whatever initial exploratory incisions may be necessary for this purpose. If, in the course of an operation to which the patient consented, the surgeon discovers conditions not anticipated before the operation was begun, and which, if not removed, would endanger the life or health of the patient, he is justified, though no express consent was obtained or given, in extending the operation to remove and overcome such conditions.

J. A. CASTAGNINO.

Negligent Treatment of Fracture. *Petesh vs. Morrison (Kan.) 205 Pac. R., p. 651.*

The supreme court of Kansas stated that the plaintiff's right leg was broken near the ankle, and the defendant was called to treat the injury. He dressed the broken limb, braced it with a splint, and propped the foot at a right angle with a pillow. The weight of the foot, however, caused it to turn outward, and in that position union of the fracture occurred so that thereafter when the plaintiff walked her right foot turned outward at an angle of nearly 90 degrees.

An orthopedic surgeon testified that in setting fractures the limb must be placed in a normal position, immobilized, and held firmly in its normal position until the bones have an opportunity to unite; outward rotation of the foot should be corrected whether it is possible to obtain a roentgenogram or not.

The defendant's visits to his patient continued for about three weeks before he discovered that her foot was everted, by which time the cartilaginous substance had so far formed that the foot could have been straightened only by causing more pain and suffering. For the defendant, there was evidence that the foot was correctly placed and the fracture properly treated; and it was argued for him that he undertook to render limited services only; that he told the plaintiff she should go to a hospital where a roentgenogram of her injury could be taken and where she would receive more attention; that her accident occurred during an epidemic of influenza; that he had so many patients he was busy night and day,

sleeping only three or four hours in the twenty-four, and that the eversion of the foot was the result of the plaintiff's own negligence. The disputed facts were disposed of by the jury's verdict and the judgment for plaintiff was affirmed. J. A. CASTAGNINO.

Liability as Partners—Administration of Anesthetic by Nurse—Evidence. *Cook vs. Coleman et al. (W. Va.), 171 S. E. R., p. 750.*

Three physicians were sued as partners doing business under the name of a hospital. The plaintiff was operated on for a laceration of the neck of the uterus due to childbirth three or four years previously. The operation also included an attempt to remedy a laceration of the perineum suffered at the same time. A fistula shortly thereafter made an opening between the vagina and the rectum. The plaintiff contended that an operation in the region of the fistula was neither necessary nor authorized, while the defendants contended that it was both authorized and necessary, and that the fistula was the result of unavoidable infection. After an unsuccessful effort to close the fistula, the plaintiff was taken to another hospital, at which, after the infection had been eliminated and the tissues strengthened, the trouble was remedied in the third or fourth operation performed there. A judgment for \$10,000 was rendered. The court was unable to say that the jury could not properly have returned a different verdict on the question of liability.

The defendants, though not actual partners, may be held to liability as if they were, on proof of their having held themselves out, or knowingly permitted themselves to be held out, as such, and knowledge of and reliance on the representation, by the plaintiff in the making of the contract. Evidence of separate admissions of the partnership relation, of close association in business, of general knowledge of the existence of the partnership known to and relied on by the plaintiff, and billheads used in the business, such as those of a hospital designating one of the defendants as "surgeon in charge," another as "resident surgeon," and the third as "associate," is admissible to prove liability as partners.

The plaintiff contended that imperfect administration of the anesthetic had contributed to or caused the injury. Being blindfolded when the ether was administered, she could not say whether the physicians were then present or not, but she thought they were not. They said they were, and that the ether was properly given under the supervision of one of them. The patient claimed that she was sufficiently conscious at one time to know that she felt pain and flinched. In connection with this evidence an expert witness was permitted to say over objection that, in his opinion, it is required by law that ether be administered by a doctor of medicine. As neither the common law nor any statute of West Virginia requires such administration, the ruling was clearly erroneous. In respect of the evidence of another expert witness as to the propriety of the administration of ether by a nurse, undue limitation of cross-

examination was complained of. The nurse was shown to have had considerable experience in such administration and, in the opinion of her employer, to be competent. A question substantially reciting her experience and the quality of her work in that line and asking the opinion of the witness, based thereon, was excluded. He might have adhered to his opinion, but he might have qualified it or admitted that it was not in accord with uniform practice. Manifestly, he should have been required to answer the question. His evidence on that point, taken in connection with the testimony of the plaintiff, was strongly probative in her favor, and the defendants should have been allowed to test the soundness of his opinion thoroughly.

A female plaintiff in an action for damages for an injury alleged to have been negligently done in a surgical operation, causing malformation of some of her organs and general debility, is not competent to testify that, by reason thereof, she is incapable of childbearing. Nor can she testify to an opinion expressed by her physician to the effect that she is so incapacitated, but her testimony as to loss of sexual inclination in consequence of the injury is admissible. The professional opinion testified to by her would be mere hearsay, while the physical incapacity to carry and deliver a child is a question of medical and surgical science, as to which she is obviously incompetent to express an opinion. The case was remanded for a new trial. J. A. CASTAGNINO.

GYNECOLOGY

UTERUS

Stacy, L. J.: Anteponition and Retroponition of the Uterus: Incidence and Symptoms. *J. Am. M. Ass.*, 1922, lxxix, 793.

One thousand consecutive case records of unmarried women between the ages of 15 and 45 years, who gave no history of pelvic infection, pelvic tumor, pregnancy, or other pathologic or physiologic factors which could have affected the position of the uterus were studied to determine the relative frequency of displacements of the uterus and associated symptoms which could be ascribed to such displacements. The cases in the series represent the congenital type. In the series of 1,000 cases retroposition was found during routine examination in 202 (20.2 per cent), a percentage of especial interest in its corroboration of Polak's statement that the incidence of retroversion (including the acquired type) as compared with that of the normal is 1:5.

The author comments on the absence of symptoms commonly attributed to retroversion in many of the cases in which retroversion is discovered on routine examination, and on the fact that in cases in which such symptoms are present surgical measures frequently fail to give relief by restoring the uterus to the normal position. Attention is called to the normal mobility of the organ and the anatomical and physiological factors, especially the intra-abdominal pressure, which operate in preserving the congenital position. Because of these factors, trauma due to falls or injuries is regarded as an unlikely cause of retroversion, a sudden increase of intra-abdominal pressure serving only to force the uterus into anteponition. In the congenital cases of retroversion, on the contrary, it is reasonable to assume that the position is accentuated by continued intra-abdominal pressure during childhood and adult life.

Congenital retroversion causes no symptoms *per se*, but symptoms following infection, childbirth, or the development of a tumor are more common in cases of congenital retroposition than in cases of anteponition.

From an analysis of the series of 1,000 patients the following conclusions were drawn:

1. Uncomplicated retroversion of the uterus occurs in 20.2 per cent of unmarried women.

2. The age at which menstruation becomes established is practically the same in women with anteponition and in those with retroposition of the uterus. Irregularity was about 1.4 times as common in cases of retroposition as in those of anteponition. Menstruation was slightly more profuse in cases of retroposition. Fifty-nine and two-tenths per cent of patients with anteponition, and 55.8 per cent of those with retroposition menstruated normally.

3. Dysmenorrhœa is about 1.3 times as common in women with retroposition as in those with anteponition.

4. Women with retroposition had inter-menstrual backache slightly more often than those with anteponition.

5. There seems to be little difference in the character and incidence of symptoms as a whole in cases of anteponition as compared with cases of retroposition of the uterus.

6. Congenital retroposition of the uterus associated with backache, dysmenorrhœa, etc., is usually part of a general picture of deficiency in development.

7. Surgical procedures to relieve pelvic symptoms in uncomplicated cases should be advised only after careful study of the patient from the point of view of the general as well as the gynecological condition.

Mock, H. E.: So-Called Traumatic Displacements of the Uterus. *J. Am. M. Ass.*, 1922, lxxix, 797.

In this article the author discusses true and false claims of disability due to uterine displacement ascribed to injury, pointing out the great responsibility assumed by a physician when he informs his patient that certain existing pathologic conditions are the result of trauma.

From the answers to questionnaires sent to industrial commissions, to chief surgeons of railroad and street railway corporations, and to insurance companies, it appears that so-called traumatic displacements of the uterus constitute the basis of injury claims sufficiently often to deserve consideration.

If trauma were the cause of displacement one would expect to find torn and bleeding ligaments, a lacerated and bleeding pelvic floor, and low position of the uterus due to the loss of its normal supports. A search of the literature and wide inquiry have failed to reveal such a case.

Medical men all too frequently attribute symptoms to displacements while ignoring other existing pathologic conditions. The diversity of opinion of the physicians consulted can be explained on the basis of the various professional interests of the different groups. The outstanding fact is that no one has been able to report a true permanent displacement of the uterus which could be ascribed irrefutably to accident as the etiological factor. Too often the general practitioner traces the condition, by the history, to an alleged injury without thinking of the medico-legal aspects of the case. Frequently the patient dates her trouble from an accident when neither she nor the physician knows whether or not the displacement was present prior to that date.

Most authorities now definitely agree that a certain percentage of women have retrodisplacement of

the uterus without any symptoms, and that in such cases the retroposition is apparently a normal condition. Retrodisplacement of the uterus may occur at any period in life, especially in the parous woman. The cause may be some condition in the normal supports of the uterus itself or around the uterus in the abdominal cavity. When retroposition is already present trauma may cause exaggeration of the condition with subsequent symptoms; or the physician, on examining a woman who is complaining of symptoms following an injury, may find the displacement, and ascribe all the symptoms to that condition though they may be due to causes very remote from the uterus.

Occasionally, however, acute temporary displacement of the uterus follows trauma but in these cases the symptoms develop with great severity immediately after the injury and the uterus can be replaced with complete relief. These acute cases are not the ones which cause medical-legal controversies.

In the average case in which personal injury of this nature is claimed the accident is not serious. The claim of injury is made or the symptoms develop a considerable time afterward, a physician, purposely or innocently, diagnoses the condition as due to the accident, and a lawyer takes charge and enters suit. The insurance company or the corporation frequently considers it cheaper to settle the case rather than to enter an expensive legal fight, thus perpetuating such false claims. The woman herself is not necessarily a malingerer, but may sincerely believe her physician and her attorney. Permanent uterine displacements are never due to trauma *per se*.

E. L. CORNELL, M.D.

Maluschew, D.: A New Operative Procedure in the Treatment of Severe Uterine Prolapse (Ein neues Operationsverfahren zur Behandlung grosser Uterusprolapse). *Zentralbl. f. Gynäk.*, 1922, xlv, 671.

The vaginal portion of the cervix is incised all around and the vagina bluntly dissected back in a cuff 2 cm. wide. Through a posterior colpotomy incision the body of the uterus is pushed forward and the round ligaments are grasped with forceps and drawn forward. The uterus is then allowed to sink back and the round ligaments are both sutured to the anterior surface of the vaginal portion of the cervix. The colpotomy incision is then closed, the cardio-uterine ligaments and the levator muscles being included in the suture. Continuous urinary incontinence frequently necessitates a pyramidalis plastic.

FRIEDRICH (Z).

Mayo, W. J.: Myomectomy for Myomata of the Uterus. *New England Med.*, 1922, xli, 235.

A retrospect of the various procedures recommended and practiced for the relief of non-striated muscle tumors of the uterus, myomata or fibromyomata, shows a steady progression from inefficient and blind methods to the present perfected technique which renders the treatment of such tumors

one of the best understood and safest procedures of modern surgery. This retrospect teaches valuable lessons and shows that procedures obsolete or almost forgotten are still applicable in small but selected groups of cases and are fundamental to our knowledge of the subject.

The menstrual cycle, aside from its function in reproduction, has a marked effect on the female during the period between puberty and the menopause. All surgeons have seen the shrinkage of the uterus and shortening of the vagina accompanied by trophic changes which follow ovariectomy. The nervous and psychic changes of the normal menopause are aggravated in young women by operations which check the menstrual flow. The effect on the patient is essentially the same whether menstruation is stopped by removing the ovaries and leaving the uterus, or removing the uterus and leaving the ovaries. It is probable that menstruation itself has some important endocrine function.

Conservation of the reproductive function is of first importance, but conservation of the ovary for the continuance of its internal secretion and its effect on the production of menstruation is second only to the generative function. Even if reproduction is impossible, conservation of the ovary or some portion of it for the sole purpose of continuing menstruation is of the greatest importance. The estimation of the success of an operation from the patient's standpoint may turn on whether or not the menstrual function is lost.

The reproductive and menstrual functions are sacrificed not only by removal of the ovaries but also by radical operations on the uterus, especially for myomata. The incidence of myomata has been variously computed; it probably averages about 12 per cent for middle-aged white women and 30 per cent for middle-aged colored women. The presence of myomata does not of itself necessitate operation; every surgeon has observed many women with multinodular myomatous uteri who have no symptoms and bear children without trouble. This fact is of importance since some of the methods of treatment advocated for uterine myomata, such as ergot and electricity in former times, and radium and the roentgen ray in our day, have been assumed to be harmless because of their non-operative character, and harmfully applied in many cases in which no treatment was required. Statements with regard to the value of these methods must ever be construed with the facts in mind.

The common indications for the treatment of uterine myomata are hemorrhage, pressure, signs of malignancy, and the size of the growth, the form of treatment being determined in a given case by the particular indication present. The technique of hysterectomy has been thoroughly organized and perfected until there is a tendency to perform the operation so readily that many patients are deprived, not only of the right to motherhood, but also of the function of menstruation which is so important to the endocrine system.

Too often the decision to operate in cases of tumor of the uterus is based on the possibility of malignant degeneration. In the Mayo Clinic such degenerations are found in less than 1 per cent of the cases and in the majority a prudent diagnostician could have made a diagnosis of probable malignancy in time for a curative operation. Hysterectomy is seldom necessary for benign myoma in a woman under 35 years, and demands an excellent reason in a woman under 30.

It has been argued against myomectomy that it is a more dangerous operation than hysterectomy, but the mortality in the Mayo Clinic series of 909 cases with seven deaths (January 1, 1891, to November 1, 1921) was a trifle under 1 per cent (0.7). In cases of abdominal myomectomy the mortality was 0.5 per cent. Vaginal myomectomy gave a death rate of 2.7 per cent on account of the infection present. Every patient dying in the hospital, irrespective of the cause of death or the length of time it occurred after operation, is counted as dying from the operation. Five hundred and four patients who had had myomectomies were traced; of these, twenty-four had had one child each, seven had had two or more children, and fifteen were pregnant at the time the investigation was made. As only 75 per cent of the patients were married, a total of forty-three living children is most encouraging. Twenty-three married women who were sterile before the operation had one or more children after the operation.

Twenty-three pregnant women were subjected to myomectomy because of acute degenerative changes in myomatous tumors and all lived. Sixteen of the pregnancies were intra-uterine. Eleven of the patients went to term and bore living children; two miscarried within a week after the operation, but in each case the miscarriage was imminent at the time of operation; and three showed signs of impending miscarriage previous to the operation which subsided after the removal of the tumors. Seven women had extra-uterine pregnancies at the time the myomectomy was performed; in all of these patients the tube had ruptured and the fetus was dead. The myomectomies and the operations for the extra-uterine pregnancies were performed at the same time in these seven cases; it seemed possible that the presence of the tumors was responsible for the ectopic pregnancies. One of the patients has since borne a child.

The statement has been made that often myomata develop after myomectomy. Only 2.56 per cent of the cases required a secondary operation; in more than half of these the second operation was performed five or more years after the myomectomy, and in one, thirteen years afterward. Since more than half the secondary operations were performed elsewhere it was difficult to obtain accurate pathologic data, but the majority were performed for inflammatory disease and in no case was a malignant condition found. In the cases in which the second operation was performed for recurrence of the myomata the use of radium would probably be

considered now. In none of the cases reported were the recurring tumors large, because the patients, knowing their former condition, were on the alert. Hysterectomy was usually performed at the second operation but the patient had been carried along by the myomectomy to an age at which a radical operation is of less consequence.

It is impossible, in many cases of myomatous disease, to save a uterus capable of bearing a child, but in suitable cases one ovary and enough of the endometrium can be saved to continue the menstrual function. The author has removed all of one wall of the uterus and one ovary and tube and made a plastic restoration which was followed by the normal continuance of menstruation for years.

If the patient is approaching the menopause, especially if hemorrhage is the chief indication for treatment, radium gives results so sure and so safe that it has no competitor and its use is indicated for patients whose general condition renders operation more than ordinarily hazardous, such as those with obesity and diabetes. If the patient is near the menopause and has large tumors, and especially if there is associated coincident disease of the ovaries or a suspicion of malignancy, hysterectomy is indicated.

This brief retrospect of the facts which have developed with the growth of our knowledge of myomata of the uterus is sufficient to demonstrate the dignified and unassailable position of myomectomy during the reproductive life of woman.

Meleney, H. E.: *Syncytioma (Atypical Chorioma) of the Uterus Terminated by Acute Peritonitis*. *Surg., Gynec. & Obst.*, 1922, xxxv, 137.

Chorioma, a tumor which develops from the ectodermal elements of the chorion of the fetus, varies widely in its clinical course and its gross and microscopic appearance. In many cases it is an extremely malignant tumor and metastasizes extensively through the blood stream. In other cases in which the early clinical and microscopic picture is much the same, it retrogresses spontaneously or is cured by curettage.

In the benign type of chorioma, acute infection of the uterus is not an infrequent complication which often leads to septicemia or peritonitis.

As yet there is no certain method of determining the benign from the malignant types of chorioma to assist in the choice of the surgical procedure.

The case reported by the author was that of a woman who had had an abortion with profuse hemorrhage and had bled intermittently up to the time she entered the hospital one year later. She was then anemic and had a slight fever. Subsequently she developed symptoms of sepsis and died. Autopsy revealed a small tumor in the right cornu of the uterine cavity, acute infection of the endometrium, acute diffuse peritonitis, and hemolytic streptococcus bacteremia. The tumor consisted of syncytial cells lying singly and in clumps in the stroma of the uterine mucosa and the superficial myometrium.

I. E. BISHKOW, M.D.

ADNEXAL AND PERI-UTERINE CONDITIONS

Graffagnino, P.: Ectopic Pregnancy. *Am. J. Obst. & Gynec.*, 1922, 14, 148.

The author has studied the cases of extra-uterine pregnancy admitted to the Charity Hospital of New Orleans during the years 1906-1919, and in his tabulations compares the findings with those reported from the Johns Hopkins Hospital by Wynne, the Woman's Hospital of New York by Farrar, and Cook County Hospital of Chicago by Lewis.

In the years under consideration 201 case records were filed in the Charity Hospital as those of extra-uterine pregnancies. Thirty-five cases, however, have not been considered in this paper. During the same period 17,754 patients were admitted to the various gynecological services of the hospital. Therefore the 186 cases of ectopic pregnancy studied by Graffagnino constituted approximately 1.05 per cent of the total number of cases. The incidence of ectopic pregnancy in the Cook County Hospital is not stated in the report by Lewis. In the Johns Hopkins Hospital it was 304 in 22,688 cases (1.3 per cent) for a period of twenty-seven years, and in the Woman's Hospital 309 in 19,674 cases (1.5 per cent) for a period of ten years. It will be noted, then, that the incidence in the Charity Hospital, the Johns Hopkins Hospital, and the Woman's Hospital was practically the same.

The race to which the patient belonged was recorded in 179 cases. Ninety-two patients (51.3 per cent) were white women, and eighty (48.6 per cent) were negroes. In the Johns Hopkins Hospital 302 (66.66 per cent) of the patients were white women, and 101 (33.33 per cent) were negroes. It will be noted that in both series the incidence was greater among the white women. The race is not stated in the reports of the Woman's and Cook County Hospitals.

In the records of the Charity Hospital the age of the patient was given in 182. The youngest patient was 17 years and the oldest 48. At Johns Hopkins the youngest patient was 15 and the oldest 48, while at the Woman's Hospital the youngest patient was 17 and the oldest 42. The report of the Cook County Hospital states that two patients were under 20 years and five over 40. In all the hospitals, however, the greatest incidence of the condition was in women between the ages of 23 and 35 years.

In the Charity Hospital series, seventeen patients (9.5 per cent) gave a history of entire sterility, as compared with 21 per cent at the Johns Hopkins Hospital and 15 per cent at the Woman's Hospital. The Cook County Hospital report states that nearly 14 per cent of the patients were sterile for a period of five years before the ectopic pregnancy. Of the 169 Charity Hospital patients who had been pregnant before, 11 (5.9 per cent) had had only miscarriages, as compared with 5 per cent at the Johns Hopkins Hospital and 17 per cent at the Woman's Hospital. The Cook County Hospital

report does not state how many patients had had miscarriages only.

The interval between the last pregnancy and admission into the hospital for the ectopic pregnancy was noted in ninety-eight cases treated at the Charity Hospital; the shortest interval was two months and the longest twenty-nine years. At the Johns Hopkins Hospital the shortest interval was three months and the longest nineteen years, while at the Woman's Hospital the shortest interval was twelve weeks and the longest sixteen years. The Cook County Hospital report makes no note of this point. At the Charity Hospital the interval was between one and seven years in ninety-eight cases (67.3 per cent) and at the Johns Hopkins Hospital in 74 per cent. The reports of the Woman's and Cook County Hospitals do not note this point.

Of the Charity Hospital series of 186 patients only eleven (5.9 per cent) gave a history of previous operation, as compared with forty-five (14.85 per cent) at Hopkins and nineteen (10.2 per cent) at the Woman's Hospital. The Cook County report does not note this point. Sixteen of the 186 patients (8.6 per cent) reported treatment for a specific infection at some time before admission (three had positive Wassermann tests on admission), as compared with 10.8 per cent at the Woman's Hospital. The other reports do not note this point.

At the Charity Hospital 122 patients (66 per cent) complained of pain, and sixty (32 per cent), of bleeding. At the Johns Hopkins Hospital the corresponding figures were 84 and 31 per cent. At the Woman's Hospital 96.6 per cent complained of pain alone or pain with bleeding, while at the Cook County Hospital about 85 per cent complained of pain, and 64.2 per cent complained of bleeding.

In the Charity Hospital seventy-eight patients (41.9 per cent) stated definitely that they had missed one or more periods, as compared with 34 per cent at the Johns Hopkins Hospital, 34 per cent at the Woman's Hospital, and 32.1 per cent at the Cook County Hospital. Forty-one patients (22.5 per cent) gave a history of irregular periods, and fifty-one (27.4 per cent) had noticed that the periods were scant. At the Johns Hopkins Hospital fifty-two (17 per cent) noticed abnormalities. Sixteen patients (8.6 per cent) at the Charity Hospital gave a definite history of regular periods at all times, as compared with 6 per cent at Hopkins. Of those at the Cook County Hospital 56 per cent neither missed any periods nor noticed any abnormalities.

Unfortunately only fifteen of the records showed a hæmoglobin determination before operation, and only forty-three a leucocyte count. The highest percentage (33.33 per cent) showed a hæmoglobin between 70 and 80. At the Johns Hopkins Hospital, in a series of 106 hæmoglobin determinations the highest percentage (18.7) was between 70 and 80, while at the Woman's Hospital in a series of 100, the highest percentage (26) was between 80 and 90. No hæmoglobin record is given in the Cook County Hospital study, and both Wynne and Farrar point

out that a hæmoglobin determination is of doubtful value in a diagnosis of ectopic pregnancy since there is no marked drop until after forty-eight to seventy-two hours.

In the Charity Hospital thirty-nine of a series of forty-three cases (90.7 per cent) showed a leucocytosis under 20,000 as compared with 90.3 per cent in a series of eighty-two at Hopkins and 97 per cent in a series of 100 at the Woman's Hospital. The leucocytosis is so stated in the Cook County Hospital report that a fair comparison is impossible.

The Charity Hospital records show that the temperature on admission in the series of 186 cases was under 101 degrees F. in 167 cases (89.9 per cent), while the pulse on admission in a series of 174 cases was under 130 in 150 cases (86.2 per cent). In three cases the pulse was so rapid it could not be counted, and in one case it was imperceptible. At the Johns Hopkins Hospital the temperature was under 101 degrees F. in ninety-one of a series of 180 cases, and the pulse less than 130 in 91 per cent of the same series. At the Woman's Hospital, in a series of 100 cases, the temperature was under 101 degrees F. in ninety-seven, and the pulse under 130 in the same number. At Cook County Hospital 94.8 per cent of the entire series of patients had a temperature under 101 degrees F., but the pulse rate was not noted.

The pre-operative diagnosis was recorded in only eighty-four cases (45.2 per cent) at the Charity Hospital. Thirty-three cases were correctly diagnosed: three were diagnosed as probable cases of ectopic pregnancy, and two were diagnosed as unruptured ectopic pregnancy. The diagnosis was correct, therefore, in 44 per cent as compared with 46 per cent at the Johns Hopkins Hospital, 55.6 per cent at the Woman's Hospital, and 59 per cent at the Cook County Hospital.

At the Charity Hospital the operation was vaginal in only eleven cases (5.9 per cent), as compared with 8 per cent at Johns Hopkins, and 7 per cent at the Woman's Hospital. The Cook County Hospital report, which treats only of diagnosis, gives no definite figures.

The location of the pregnancy was stated in the records of 130 cases treated at the Charity Hospital. In eighty (57.5 per cent) it was in the right tube, and in fifty-eight (41.8 per cent) in the left. There was one case of bilateral pregnancy. At the Johns Hopkins Hospital it was in the right tube in 50 per cent and in the left tube in 49 per cent and there were two cases each of right interstitial and right ovarian pregnancy. At the Woman's Hospital the pregnancy was on the right side in 51.4 per cent of the cases and on the left in 48.6 per cent and there was one case of bilateral pregnancy. The location is not stated in the Cook County Hospital report.

Unfortunately the results of gestation are stated in only 126 of the Charity Hospital records: rupture in ninety-five; no rupture in ten; tubal abortion in six; full-term child dead in fourteen; full-term child living at birth in one.

The pathologic report was positive in fifty-two cases and negative in six, though even when the report was negative the operator was still sure after the operation that he was dealing with an early ectopic pregnancy. In twenty-seven cases, four of which are included in the report, the fetuses could be identified positively, and ranged from an embryo of a few weeks to fourteen full-term fetuses and one living child who died within a few hours after delivery. Thus a total of seventy-five confirmations was secured out of a possible eighty-one. The pathologic reports for the other hospitals are not available.

In the Charity Hospital series of 186 cases there were twenty-three deaths (12.3 per cent), which is high as compared with 4.3 per cent at the Johns Hopkins Hospital, not quite 1 per cent at the Woman's Hospital, and 8 per cent at the Cook County Hospital. As is to be expected, the highest death rate prevailed at the two general hospitals where the patients are of a lower social status, where it is more difficult to secure adequate histories to justify very early interference, and where a greater number of patients are admitted in a moribund condition.

C. H. DAVIS, M.D.

Moore, G. A.: *Interstitial Pregnancy, with Report of a Case Operated upon Before Rupture.* *Boston M. & S. J.*, 1922, clxxxvii, 284.

The case reported is as follows:

The patient, a woman 27 years of age, had been married five years. Her husband is living and well. She had one child living and well and no other pregnancies. She had had the usual diseases of childhood and eight years ago a peritonsillar abscess, but no other illness. The catamenia had been regular and normal until recently. For the past several months it had been very profuse every other month. There was no dysmenorrhœa. September, 1919, menstruation was excessive in amount but not prolonged. The October period was normal. In November a profuse flow began about the twenty-eighth day and continued a few days into December. Flowing began again January 2, 1920, was very profuse, continued for five days, and then ceased for five days. Since that time, January 12, there had been an almost constant but not profuse flow. Walking or turning quickly in bed caused a sharp pain in the left side of the abdomen low down. There was no discomfort in sitting. Since January 1, there had been considerable urination but no dysuria. The bowels were normal. There was no nausea or vomiting.

At examination February 11, 1920, the blood pressure was found to be 130, the pulse 80, and the temperature normal. The abdomen was level but tympanitic throughout. There was no mass and no tenderness except in the left lower quadrant, just above the symphysis, where a very tender mass about the size of an egg could be felt.

On vaginal examination the cervix was found to be soft and patulous, the uterus moderately en-

larged, and the fundus tipped toward the right. Extending upward from the left side of the fundus and connected with it was a firm tender mass about the size of a tangerine orange. The tubes and ovaries were apparently normal.

The firm consistency of the mass and the fact that it was definitely connected with the fundus misled the author into making a first diagnosis of fibroid. However, the regular menstruation, the pain, and the fact that no mass was palpable on examination six weeks previously led to a second diagnosis of interstitial pregnancy.

At operation the fundus was moderately enlarged and tipped far over to the right. In the left cornu of the uterus was a dark purplish cystic mass about the size of a tangerine orange, extending upward and slightly to the left. The peak of the tumor extended up somewhat above the attachment of the left tube. Both tubes and ovaries were normal. The encroachment of the tumor upon the fundus seemed to involve only the left cornu. A conservative operation was therefore decided upon. The tumor was removed by a wedge-shaped incision in the body of the uterus, the left tube being included. The uterine cavity was not opened during the operation. The incision in the uterus was closed with double No. 2 iodized catgut and the broad ligament was sutured with a continuous suture. The abdomen was closed in the usual way. Convalescence was uneventful and the patient was discharged March 2, 1929. E. L. CORSTELL, M.D.

Croft, E. O.: An Operation for the Removal of a Living Extra-Uterine Child at Full Term.
Lancet, 1927, vol. 38.

The patient, a woman 31 years of age, was admitted to the Hospital for Women, Leeds, November 5, 1921. She had been married eleven years but had had no previous pregnancy. The last period occurred in February, 1921. In April she suffered from painful and difficult micturition with severe pain in the lower abdomen, and remained in bed two months. In June a severe attack of abdominal pain with constipation and slight jaundice suggesting gall-stone colic confined her to bed for several weeks. About the end of July, when she got up, she had some vaginal bleeding for one day. The show was repeated a month later, and again in three weeks. During the subsequent ten days before admission to the hospital there had been no bleeding. Since February the abdomen had gradually enlarged and the patient had noticed the enlargement more particularly since the attack of colic in June. There had been a little edema of the legs during the last two months. Micturition remained frequent and there was constant troublesome constipation.

When the patient was examined in the hospital the breasts showed the usual signs of pregnancy. The abdomen was irregularly enlarged to a size corresponding to about the eighth month of pregnancy. The outline of the pregnant uterus could

not be defined on palpation. A rounded mass upward and to the right of the umbilicus suggested the presence of the fetal head and other large nodules suggested fetal limbs. A hard mass was felt to the midline, rising from the pelvis. A loud souffle could be heard over the left lower region of the abdomen. The presence of the fetal heart sounds was not definitely established.

The vaginal axis was displaced forward and the cervix was drawn upward and forward behind the symphysis pubis. A firm mass was traced upward from the cervix anteriorly. Posteriorly a large, solid roundish mass occupied the pelvis, pressing on the rectum behind and causing the anterior displacement of the vagina and cervix.

At operation a bulging swelling resembling the bladder appeared at the lower end of the wound. The passage of the catheter and the relations of the round ligaments proved this to be the uterus, which was very soft and enlarged to about double its non-pregnant size. As the operation proceeded the uterus became firmer and smaller by contraction. A large, irregularly lobed swelling occupied the greater part of the abdominal cavity, extending and being more fixed toward the left. The hand could be passed on the right side between the tumor and the abdominal wall, down to the pelvic region; through the thin cystic wall of this sac the fetal parts could be felt, with the head above, the limbs in front, and the breech below in the pouch of Douglas. On the left side the hand could be passed between the sac and the abdominal wall to the iliac fossa but no further. The soft mass of the placenta was defined as attached to the structures of the pelvis on this side, in the situation of the iliac vessels, ureter, and base of the broad ligament up to the side of the uterus. The proximal part of the left fallopian tube could be traced for about $\frac{1}{2}$ in. from the uterine cornu but was then lost on the sac wall. The much-displaced infundibulopelvic ligament could be identified toward the upper and back part of the sac. The right hemisphere of the sac was thin and transparent, consisting apparently of only fetal membrane. A portion of the left side of the sac was formed of the remains of the left tube and broad ligament. The sac was opened to the right, well clear of the placenta. A loop of pulsating cord at once escaped with liquor amni. The child, a male, was removed rapidly. It was apneic, but respiration was soon established by the usual methods. It was free from obvious malformation, perfectly developed, and mature although small. Its weight was about 5 lbs. The fifth day there was some hæmatemesis and melena and the infant died. Autopsy was not permitted.

Examination of the sac revealed the placenta attached mainly to the subperitoneal pelvic structures, its anterior edge extending a short distance forward on the free portion of the sac. It was obviously impossible to remove the placenta in view of the danger to the subjacent structures and the difficulty of ligating the vessels. The cord

was ligated and cut off short and the stump dropped into the sac. The sac was marsupialized by suture to the lower angle of the wound, and the cavity loosely packed with gauze. The remainder of the abdominal wound was closed in the usual manner.

It appeared that in this case the pregnancy originated in the left fallopian tube. There was then erosion and extension into the broad ligament and subsequent perforation of the posterior layer of the broad ligament into the peritoneal cavity, the fetal membranes remaining intact.

There was some shock following the operation, the pulse remaining at about 120 for a few days. On the fifth and eighth days the temperature rose to 100 degrees F. There was only slight oozing from the wound, and the packing was gradually lessened. On the sixteenth day the sutures were removed; the wound had healed except around the drain. On the twenty-seventh day the temperature rose again. The remains of the packing were then removed; offensive discharge and small portions of placenta escaped and the temperature fell. From time to time the cavity was irrigated and small fragments removed. On January 17 (the seventy-first day) under ether anesthesia the drain hole was enlarged to admit the finger and the remaining mass of placenta lying loose in the cavity was extracted, the cavity freely irrigated, and a large tube inserted. The temperature rapidly subsided and the sinus quickly healed after removal of the tube.

E. L. CORNELL, M.D.

EXTERNAL GENITALIA

Neel, J. C.: The Treatment of Cystocele. *J. Am. M. Ass.*, 1922, lxxix, 704.

The author calls attention to the construction of the pelvic floor and the important part played by the pelvic fascia in the support of the vaginal outlet. This fascia is a direct continuation of the abdominal fascia and is firmly attached in the region of the white line. It is perforated by the urethra, cervix, and rectum. The cervical penetration is located about the center of the most dependent portion and at the weakest point. Since the endopelvic fascia is the true supporting structure, cystocele and prolapse result from disturbance of the function of that fascia and the amount of prolapse will be in direct ratio to the extent of the disturbance. Prolapse thus results along the following planes: (1) urethral, clinically recognized as prolapsed urethra; (2) vesical, clinically a cystocele; (3) cervical, clinically uterine prolapse; (4) postcervical, clinically an endocele; and (5) rectovaginal, clinically a rectocele. To effect a cure in such conditions the function of the pelvic fascia must be restored.

In the operative treatment the age of the patient and the extent of the planes involved are the important points for consideration. During the childbearing period the radical cystocele operation with posterior repair and abdominal suspension of the uterus has proved most satisfactory and does not

interfere with subsequent pregnancies. Following the childbearing period the uterus becomes a liability rather than an asset. As the position of the bladder does not depend upon the position of the uterus, the position of both the uterus and bladder must be considered in cases of prolapse. It is rarely necessary to leave a portion of the uterus for menstruation since the theory that the life of the ovary depends on the menstrual function is far from being established. In these cases the usual procedure should be a vaginal hysterectomy since this allows the best reconstruction of the vaginal vault. In the repair of the cystocele the fascia should be overlapped. In fifty-seven cases operated upon for various forms of prolapse there has not been a single recurrence of the cystocele.

H. W. FINK, M.D.

Ward, G. G.: The Technique of Repair of Enterocele (Posterior Vaginal Hernia) and Rectocele as an Entity and When Associated with Prolapse of the Uterus. *J. Am. M. Ass.*, 1922, lxxix, 709.

In large rectoceles the usual operative technique of Emmet or Hegar does not give a permanently satisfactory result. In these cases a technique may be employed which ensures a cure by treating the rectocele as a hernia and anchoring the rectal pouch in a higher position on the undamaged portion of the vaginal wall where the fascial supports of the canal are intact. The operation consists first in completely separating the rectum from the posterior vaginal wall as far up as the cul-de-sac of Douglas and then sliding the loosened rectal pouch high up along the vaginal wall by means of a suture. Thus the denuded rectum is carried up and placed so as to adhere strongly to the upper undamaged third of the posterior vagina which is above the former site of the rectocele. The pouched part of the vaginal wall which entered into the formation of the rectocele is then cut away and the operation completed by a perineorrhaphy in which the pubococcygeal portion of the levators is exposed and approximated in front of the rectum, thus making a strong barrier to further descent.

The extreme types of posterior vaginal hernia or enteroceles are rare but those of lesser degrees are far more frequent than is generally believed. In cases of enterocele without uterine prolapse the posterior vaginal wall is opened in the midline for its entire length and the peritoneal sac of Douglas is dissected free up to the uterosacral ligaments. The sac is ligated and cut off, and the uterosacral ligaments are united with interrupted Pagenstecher linen sutures as close to the rectum as possible. The denuded space is obliterated with continuous buried catgut sutures, and the vagina closed in the usual manner. In cases associated with prolapse of the uterus, in which the Mayo technique is employed, the obliteration of the cul-de-sac is easily accomplished after the uterus has been cut away from the broad ligaments. A finger in the pouch demonstrates its exact location and a median vaginal

incision exposes the sac so that it can be easily dissected out up to the region of the uterosacral ligaments where it is closed by a suture and cut off. The uterosacral ligaments are then united with loose sutures and the denuded space closed with continuous buried catgut sutures. After the cul-de-sac is obliterated in this manner the broad ligaments are sutured together and interposed beneath the bladder in the usual way. A perineorrhaphy completes the operation. The obliteration of the cul-de-sac can be accomplished in a similar manner from above if an abdominal operation is indicated.

H. W. FINK, M.D.

Spalding, A. B.: The Cause and Cure of High Rectocele. *J. Am. M. Ass.*, 1911, lxxix, 706.

Among the causes of rectocele the author cites congenital absence of the ligamenta plicovaginalia or their injury during childbirth. These ligaments, described by Blasdel, curve downward from the sacro-uterine ligaments to the fascia in the vaginal vault and are of great importance because they support the vaginal vault and the rectum. A strain is placed upon them by the first stage of labor, and during obstetrical operations before the cervix is fully dilated the formation of a rectocele may be favored by injury to the posterior vaginal vault. Other causes of rectocele are subinvolution of the uterus, hard work during the lactation period, and chronic constipation.

The treatment of high rectocele is essentially surgical. The usual procedures advocated are totally inadequate and frequently followed by recurrence. Following the usual types of perineorrhaphy rectocele will occur in more than 20 per cent of cases. The technique perfected by the author for the cure of rectocele is as follows:

A cross incision through the vaginal fascia is made at the mucocutaneous junction of the vagina and perineum as in the Tait flap-splitting perineorrhaphy and the flap is separated from the rectum for a distance of about 6 cm. The vaginal fascia is separated from the rectum by opening the scissors and the vaginal wall is then incised in the midline from the fourchette to the pouch of Douglas. By lifting the upper angle of the incision the sacro-uterine ligaments are put under tension and, unless the uterus has been removed, can be easily made out. A chromic gut suture is passed through the vaginal wall a short distance from the upper angle of the incision, carried free, and passed through the fascial covering of the left side of the rectum at a point where it will just take up the slack in the prolapsed bowel. This suture is then passed through the fascia near the left sacro-uterine ligament, crossed over, and passed through the fascia near the right sacro-uterine ligament, then carried free to a point on the right side of the rectum opposite the first rectal stitch and up through the vaginal wall opposite the starting point. When this stitch is carefully drawn taut and tied, the rectum is raised to the sacro-uterine ligaments. The ligaments are then sutured together and the upper angle of the vaginal incision is closed. A second similar stitch causes the rectum to disappear entirely. The remainder of the operation is the same as an ordinary perineorrhaphy.

With this operation it was found that in cases of rectocele associated with cystocele better results were obtained with proctopexy than with perineorrhaphy in 52 per cent of the cases, while in rectocele associated with prolapse of the uterus, the results were better after proctopexy than after the usual perineorrhaphy in 75 per cent of the cases.

H. W. FINK, M.D.

OBSTETRICS

PREGNANCY AND ITS COMPLICATIONS

Baer, J. L.: A Contribution to the Problem of Nephritis and Nephrosis in Pregnancy. *J. Am. M. Ass.*, 1922, lxxix, 622.

The author believes that the so-called "kidney of pregnancy" occupies a position between nephritis and nephrosis. Very probably the initial changes occur in the renovascular system, the tubular epithelium becoming involved later because of the resulting dystrophy. He finds that the nephropathy of pregnancy is essentially a disease of primiparae. Prodromal symptoms, such as slight shifting oedema and moderate retention of sodium chloride, are frequent. The condition usually occurs in the second half of pregnancy. Most authors deny the transition of a pregnancy nephropathy into chronic nephritis. Of course the occurrence of pregnancy in a woman with a pre-existing nephrosis may, and as a rule will, aggravate the condition of renal decompensation.

In this study the author used functional tests based on Mosenthal's pioneer work and coupled with capillaroscopy. One of the renal functional tests, aimed at the tubular system, is made to determine the effect on the specific gravity of a series of two hourly specimens of urine and follows the administration of a dyestuff such as methylene blue or indigo-carmin. The urine must always be boiled and filtered to remove the albumin. In the normal case serial readings of the specific gravity of the urine after the administration of 5 gr. of methylene blue shows no change or an increase. In severe involvement the specific gravity will drop suddenly and remain low for many hours.

Another test, "the freshet test," is aimed at the glomeruli. In a normal case an extra liter of water taken at one time will be excreted in less than four hours. Nephritis will cause delay; the greater the involvement, the greater the delay or "hyposthenuria."

The first extensive work in capillary microscopy was done by Lombard in 1912. The changes observed and most easily studied in the nail grooves fall into two groups: the transient, with slight deformities of the capillary loops, such as a bulge at the convexity, hairpin shapes, and elongation, seen in the kidney of pregnancy and eclampsia; and the permanent, with meandering loops, tennis racket forms, and retardation of the blood stream, with segmentation, seen in pronounced true nephrosis, especially that associated with circulatory disturbances due to the renal changes, and in sclerosis of the kidney, more particularly the rapidly contracted kidney.

The differential diagnosis between nephropathy independent of pregnancy and nephropathy due to

pregnancy is based on the interpretation of renal and remote symptoms plus capillaroscopy.

The treatment of the kidney of pregnancy should be determined by our renal physiology and pathology and the relative predominance of nephritic and nephrotic symptoms. The nephropathy of pregnancy does not furnish an indication for artificial interruption of pregnancy, but under some conditions a genuine nephrosis of marked degree necessitates emptying of the uterus. Among such indications may be mentioned retinitis, albuminuria, and oedema of such degree or location as to be serious.

The prognosis is better in nephrosis than in nephritis since the epithelium of the tubular system has a regenerative power which is lacking in the glomerular system. The recovery of renal function in the kidney of pregnancy and in eclampsia is usually complete.

A brief summary of five typical cases of different types is given. C. H. DAVIS, M.D.

Talbot, J. E.: Chronic Sepsis in Pregnancy. *Boston M. & S. J.*, 1922, clxxxvii, 315.

The author draws the following conclusions:

1. The white placental infarct is the end-result of a hæmorrhagic lesion, its evolution being that of a coagulation necrosis.
2. The lesion is a discrete process, often multiple, and often repeated in the same placenta.
3. The placental lesion is secondary to a hæmorrhagic lesion in the maternal blood vessels of the placental site.
4. There is clinical and histologic evidence that the primary lesion in the maternal blood vessels of the placental site is of infectious origin.
5. The clinical sequence of events shows that the lesion is the result of hæmatogenous infection and that the source of the infection is generally in the teeth or tonsils.
6. The determination of the infectious origin of placental infarcts demonstrates a large clinical entity in pregnancy which has chronic sepsis as its initial lesion.
7. In the presence of pregnancy treatment by the removal of areas of chronic sepsis should be pursued with the greatest caution. E. L. CORNELL, M.D.

LABOR AND ITS COMPLICATIONS

Arnald, J.: The Clinical Results of Subcutaneous Pubiotomy (Pubiotomia subcutánea: resultados en la clínica). *Arch. de ginec., obst., y pediat.*, 1922, xxxv, 116.

The author reviews the results of the pubiotomies performed in the obstetrical clinic at Barcelona from 1911 to 1922. The cases, thirty-seven in all,

over those of twenty-three primiparae between 18 and 41 years of age, and fourteen multiparae between 20 and 37 years of age.

Thirty-four of the women left the clinic completely normal without the slightest postoperative complication. Of two who had a vaginal injury with urinary complications, one was completely cured by reoperation but the other left the clinic before treatment was concluded and has been lost sight of. One patient died of hemorrhage due to absolute uterine atony which followed an attempt at manual extraction of the placenta. The fetus in this case was born asphyxiated and died a few minutes after birth. All of the other patients besides these three were up between the ninth and eighteenth days, and all of the fetuses lived except the last one mentioned.

The fourteen multiparae had given birth by previous labors to twenty-one fetuses. They had been subjected to twelve forceps applications, two versions, and two breechtripsies. The nine fetuses which lived were born prematurely.

In three of these cases a pubiotomy was done for the second time on the same patient. In one case the second operation left a permanent enlargement of the pelvis sufficient to allow a subsequent spontaneous birth. In some cases the same result was obtained by one pubiotomy. W. A. BRENNAN.

Harris, J. W.: A Study of the Results Obtained in Sixty-Four Cesarean Sections Terminated by Supravaginal Hysterectomy. *Bull. Johns Hopk. Hosp.*, 1922, XXXII, 115.

The author reviews the sixty-four Porro cesarean sections done in the obstetrical service at the Johns Hopkins Hospital prior to May 15, 1922, in order to compare their mortality with the 17.4 per cent mortality in forty-six cases collected by Holland in his recent study of cesarean sections performed in Great Britain during the decade from 1911 to 1921. The indications for the supravaginal hysterectomy are given in Tables 1 and 2 and the pathologic reports are shown in Table 3.

The Johns Hopkins figures show three deaths, a total mortality of 4.68 per cent, which is about one-quarter as great as that reported by Holland. In

TABLE 1.—SUPRAVAGINAL HYSTERECTOMY AT REPEATED CESAREAN SECTION

Indications	Cases
Late in labor or manifest infection	8
Sterilization	11
Tearing of uterine incision	1
Blockage of outlet by condyloma	1
Total	21

TABLE 2.—HISTOLOGICAL STUDY OF AMPUTATED UTERI

Duration of Labor	Total specimens	Inflammatory changes	Per cent
Before or within 6 hours of onset	27	1	3.7
Six to 18 hours	5	4	80.0
Late first or second stage	28	18	64.3
Total	60	23	38.3

one case the death was due to hemorrhage on the operating table. The second death was due to acute ulcerative endocarditis which was present prior to the section. The third was believed to be due to kidney disease complicating premature separation of a normally implanted placenta with marked hemorrhage into the uterine musculature.

The author states that at the Johns Hopkins Hospital they have come to regard the late cesarean section as an extraordinarily dangerous operation. Therefore, unless they are prepared to sacrifice the uterus, they resort to pubiotomy or destruction of the child to safeguard the patient.

C. H. DAVIS, M.D.

PUERPERIUM AND ITS COMPLICATIONS

Thorp, E.: Fevers of the Puerperium. *Lancet*, 1922, cccii, 660.

During the last few years a large number of cases of puerperal sepsis and puerperal scarlet fever and cases in which the two conditions were associated have come to the author's notice in the Infectious Diseases Hospital of the Borough of Sunderland. It appears certain that in the cases in which sepsis complicated scarlet fever the sepsis was a separate infection; there was no evidence that scarlet fever caused the puerperal sepsis as the two infections had entirely separate onsets. The same strain of streptococci was cultivated from uterine swabs and the blood stream.

As regards the newborn babies Thorp's records show that there were only two who did not present evidence of the disease while in the hospital. In three cases there was evidence of infection *in utero*; the remainder developed the disease after birth, the appearance of the rash being observed within a few hours to five days.

The pathognomonic strawberry tongue was present in each case diagnosed, and thorough desquamation was the rule. The symptoms ushering in the disease

TABLE 2.—SUPRAVAGINAL HYSTERECTOMY AT FIRST CESAREAN SECTION

Indications	Cases
Late in labor or manifest infection	10
Sterilization	5
Block disease	5
Atony of uterus	5
Neglected traumatic penetration	4
Myoma of cervix	3
Hour-glass constriction of uterus	2
Spasms of uterus	2
Failure of bag to form	2
Uncontrollable hemorrhage	2
Pyrexia following manual fracture	1
Total	47

in the newborn babies were often severe, convulsions being not uncommon, the throat symptoms were prominent, and in one case death occurred from oedema of the glottis. The pure puerperal scarlet fever ran a fairly mild course, though the signs and symptoms were better marked than in other patients admitted from the town, where the disease was at that time of a particularly mild type. There were no deaths in the cases uncomplicated by sepsis.

The mothers were in most instances able to feed their babies, and treatment was directed chiefly to the vulva and vaginal lacerations. The cases of scarlet fever complicated by sepsis were much more serious, the mortality being 66 per cent. The scarlet fever having developed, a separate onset, with rigors, headache, and thirst, followed, and it was observed that the temperature which had been falling by normal lysis rose to 105 degrees F. and tended to become hyperpyretic (in fatal cases it rose to 107.4 degrees F.) and attended by all the symptoms of grave septicæmia.

When called in to see a puerperal woman with pyrexia one should immediately endeavor to exclude sepsis or to diagnose and notify regarding the disease if it is present. There appears to be a difficulty in recognizing its presence unless it is apt to be fatal; notifications are very few in comparison with

the actual number of cases undoubtedly occurring at the present time.

All degrees of sepsis require early treatment to prevent after-effects and to keep the condition from spreading. All rashes must be regarded as of septic origin until proved otherwise; morbilliform rashes in the puerperal woman are almost certainly septic. As scarlatiniform rashes are observed frequently, a diagnosis of scarlet fever should depend upon the presence of an injected throat and double rash. In coming to a conclusion as to the presence or danger of sepsis an inspection of the vagina and cervix should be made, and the presence of tears and their condition of cleanliness determined. The lochia as a rule shows some change from the normal; in most cases it does not completely stop, but becomes offensive.

Care should be taken in the choice of nurses; it should never be forgotten that pyorrhœa in a nurse may set up sepsis in her patient. A nurse suffering from septic teeth, sepsis of the throat, or subcutaneous whitlows must be prohibited from attendance; ozæna also completely disqualifies a nurse.

Swabs should be taken from the patient's uterus and vagina and an examination made of the blood. Shivering or rigor in a puerperal case of scarlet fever should lead to investigation of the uterus and vagina.

C. H. DAVIS, M.D.

GENITO-URINARY SURGERY

ADRENAL, KIDNEY, AND URETER

Heynschek, T.: *The Surgical Importance of Duplications of the Renal Pelvis and Ureter* (*Ueber die chirurgische Bedeutung von Doppelbildungen des Nierenbeckens und Harnleiters*). *Zentralblatt für Chirurgie*, 1922, 48, 87.

Duplication of the renal pelvis and ureter is a frequent cause of obstruction to the outflow of urine. The stasis in the renal pelvis and ureter lead to hydronephrosis or pyonephrosis. Complete duplication of the ureter may be recognized easily if both ureteral openings on the affected side are visible through the cystoscope. If in a case of inflammatory swelling of the bladder mucosa one ureteral opening is not visible, a diagnosis may be made by cystourethrography, i.e., transillumination of the bladder filled with a contrast solution. In diseases which lead to stasis in the renal pelvis and ureter, closure of the diseased ureter is frequently insufficient and the urine therefore flows backward.

The diagnosis of incomplete duplication of the ureter is difficult, but is occasionally aided by pyelography. The diagnosis of duplication of the renal pelvis or ureter should be made prior to operation so that during the ligation of the vessels those belonging to the normal portion of the kidney will not be ligated. In 87 per cent of the cases operated upon for duplication of the renal pelvis only half of the kidney was abnormal, and in 80 per cent of these the abnormality was in the upper portion. Removal of the abnormal half of the kidney was done seventeen times and in nearly all of the other cases the entire kidney was extirpated.

In conclusion the author reports the case of a man, 21 years of age, who had had pain on the left side since childhood and recently had experienced it also on the right side. Cystoscopy was impossible. Cystourethroscopy revealed a dilated ureter with two shadows the size of a walnut at the level of the crest of the ilium on the right side. A diagnosis of duplication of the right renal pelvis and pyonephrosis of the lower portion of the kidney was made. Heminephrectomy was done. Cystoscopy after some time showed that there was also a pyonephrosis on the left side.

The frequency of malformations of the renal pelvis and ureter is estimated at 3 to 4 per cent.

FRANKENHEIM (Z.)

Walther, H. W. E.: *Intravesical Management of Obstructions in the Ureter, with Special Reference to Stone and Stricture*. *J. Am. M. Ass.*, 1919, 19, 111.

Obstructions in the ureter are either congenital or acquired, partial or complete, and of intrinsic or

extrinsic origin. Aside from calculus and stricture, the ureter may be obstructed by urethritis (chiefly of tuberculous origin), a kink over an aberrant renal vessel, a ptosed kidney, or external pressure from a tumor, a pregnant uterus, enlarged calcareous glands, or postoperative adhesions, etc. Ureteral spasm, an exaggerated fold or valve in the mucous membrane, a temporary kink or twist, stiffness or too great flexibility of the catheter, and transient pressure from without are among the factors which may cause obstruction not of pathologic import.

In arriving at a definite diagnosis, the case history, careful abdominal, vaginal, and rectal palpation, urinalysis (of only catheterized specimens in females), roentgen-ray study (including pyelo-ureterography), and cystoscopy with ureteral sounding (by means of a wax bulb on an acorn-tipped bougie) are employed collectively.

URETERAL STONE

It is commonly observed that stones leaving the kidney become arrested at one of three points of narrowing in the ureter, namely, (1) at the uretero-pelvic juncture; (2) where the ureter crosses the iliac vessels at the brim of the bony pelvis; and (3) at the ureterovesical juncture. The vast majority of calculi find lodgment at the last-named point.

Ureteral calculi are best removed by mechanical dilatation on the injection of an anesthetic or an oil. The instruments used are a Garceau catheter, Buerger olives, a Bransford Lewis dilator, a Walther flexible sound with a filiform guide and olives, and an acorn-tipped bougie.

Dilation is attempted in several ways. The mere passage of No. 6 F. olivary-tipped catheters up the affected side frequently suffices. Shifting the axis of a stone with re-establishment of ureteral drainage will give almost instant relief of the pain. When it can be introduced past the stone the Garceau catheter, size 11 F., is the most valuable agent for dilation. The dilating olives of Buerger and the Bransford Lewis dilator frequently aid materially in hastening the expulsion of a stone.

When an instrument encounters unusual resistance in the lower ureter it will frequently be possible to pass the obstruction with ease by introducing a finger into the vagina or the rectum to serve as a guide. Stones impacted at the ureteral orifices are best liberated by cutting through the ostium with the high-frequency spark, as advocated by Furniss. The intervals at which ureteral dilations can be done are usually five to ten days in length.

URETERAL STRICTURE

The three main etiologic factors of intrinsic narrowing in the ureter are pyogenic infection,

calculus, and tuberculosis. The responsibility of the first and last named conditions is well known, but the author emphasizes particularly that ureteral calculus is an important cause of stricture formation.

Pyogenic organisms, in establishing foci of infection in the teeth, tonsils, paranasal sinuses, alimentary tract, prostate, seminal vesicles, or kidneys, are frequently the cause of ureteral stricture.

Ureteral stricture cannot be diagnosed with a No. 6 F. ureteral catheter. Kolischer pointed out years ago that the only means of determining the presence of ureteral stricture with certainty was the passage of an acorn-tipped bougie up to and through the strictured area. Ureterograms, although of value at times, may be misleading. Braasch has called attention to the fact that spasmodic contraction occurring at the instant the roentgenogram is made may suggest strictures which in reality do not exist.

In this condition, as in cases of ureteral calculus, dilation is paramount. In the male, in whom the prism cystoscope is generally used, acorn-tipped bougies of silk have proved most satisfactory. All of the instruments advocated for the treatment of ureteral stone are of equal value here. The intervals between dilations are usually about two weeks in length.

The author draws the following conclusions:

1. Many cases of obscure intra-abdominal pain are due to obstruction in the ureter. Cystoscopy and ureteral sounding should be employed whenever the symptoms of abdominal distress cannot be traced to some definite surgical condition distinct from the urinary tract.

2. Stone and stricture are the two principal factors in the causation of ureteral obstruction.

3. Approximately 90 per cent of ureteral stones can be removed by non-operative means. Trans-urethral dilation of the ureter with instruments is safe in the hands of the experienced, rational, and efficient in its results.

4. Ureteral stricture is a definite clinical entity and merits more careful consideration, especially in cases of abdominal pain in women. Thorough dilation gives definite and apparently lasting benefit.

THEODORE DROZDOWITZ, M.D.

BLADDER, URETHRA, AND PENIS

Keyes, E. L., Jr.: *The Character and Treatment of Bladder Ulcers*. *J. Urol.*, 1922, viii, 167.

Chronic inflammatory ulcerations of the bladder may be grouped into three classes: (1) tuberculous ulcers; (2) ulcers of the so-called Hunner or elusive type; and (3) incrustated ulcers.

The incrustated ulcer is due apparently to some special coccic type of infection, is often located in or about the trigone, and clinically and cystoscopically often simulates carcinoma, yet frequently is curable by local applications of argyrol or bulgarian bacillus.

The elusive ulcer occurs in the mobile portions of

the bladder away from the trigone and is sometimes associated with tuberculosis and sometimes with pyelitis and generalized cystitis. In fact it has not yet been proved that this type of ulcer is not the residue of a generalized cystitis rather than a specific entity. The clinical history and the location of these ulcers suggest that they have their origin in a mechanical cause, such as a crack in a chapped lip, and are perpetuated by the bladder activity. The submucous infiltrate about them spreads over a wide area and over this the mucosa cracks readily when stretched. Hence the tendency of the symptoms to become worse with the lapse of years. A great variety of treatments may succeed. In some cases relief is given by the mildest antiseptic irrigations, and in others, by immobilization of the bladder by an in-dwelling catheter. Resection of the ulcer with suprapubic drainage acts by causing immobilization. Urethral dilation has given relief in two of the author's cases, probably by relieving trifling urethral retention. In others, cystoscopic cauterization of the ulcers with a silver-nitrate pencil, the high-frequency current, or liquor hydrargyri nitratis has been beneficial. Resection does not always relieve, and many apparent cures are followed by relapse. The author has cured such relapses by dilating the urethra and cauterizing the ulcers.

While it is well known that the onset or accentuation of the symptoms of cystitis may occur during or following an acute infection such as the so-called influenza, the author does not venture an opinion concerning the influence of focal infections in the etiology of bladder ulcer.

Bladder irritability persisting for years after nephrectomy for renal tuberculosis may be due to a variety of causes, among which tuberculosis of the remaining kidney and of the urethra are prominent. The bladder lesion of chronic tuberculous cystitis may be a pure tuberculosis but is more often a mixed infection. Successful treatment of this condition may be accomplished by a variety of methods, among which may be mentioned the administration of santal oil, the instillation of bichloride of mercury, iodoform in oil or carbolic acid, vesiculectomy, the relief of urethral retention by the passage of the cystoscope or by the Chetwood operation, cauterization of the ulcers or tuberculous granulomata by silver nitrate or the electric spark, and finally immobilization by catheter, suprapubic drainage, and ureterostomy. In certain bladders it would seem that the mixed infection supersedes the tuberculosis in part or even wholly. Hunner has cured two such cases by resecting isolated ulcers in the vault, the resected tissue showing no tuberculosis, and in one of the author's cases relief was given by cauterization and ureteral dilation. Cauterization of this type of bladder ulcer is usually followed by marked relief of symptoms lasting from six months to a year. In the author's opinion it is not improbable that isolated granulomata of a purely tuberculous type have been healed by the high-frequency current.

C. D. HOLMES, M.D.

Turner, T. T.: Intraperitoneal Rupture of the Bladder. *Ann. Surg.*, 1922, LVII, 12.

On the basis of two cases and a review of the literature the author draws the following conclusions:

1. Intraperitoneal rupture of the urinary bladder is infrequent and few cases have been reported. Its mortality is still high but has been greatly decreased in the last forty years, before which period recovery was almost unknown.

2. The absence of sufficient laxity in the posterior or peritoneal wall of the normal bladder for easy and secure suturing of a rent is entitled to more consideration than it has received.

3. Free escape of urine into the peritoneal cavity through an intraperitoneal rupture poorly closed by suture or not closed at all will not necessarily cause a fatal peritonitis. Free suprapubic drainage with Murphy's catheter and the Fowler position may lead to recovery.

THOMAS F. FINEGAN, M.D.

Scholl, A. J., Jr., and Braasch, W. F.: Primary Tumors of the Urethra. *Ann. Surg.*, 1922, LVII, 261.

In the male urethra carcinoma is sometimes preceded by long-standing pre-malignant stages. Inflammatory conditions and long-standing infection cause metaplasia of the epithelial lining of the urethra. A protective hyperplastic reaction is produced which, in some cases, undergoes malignant change. In twenty cases of primary carcinoma collected from the literature, twelve had a history of urethral stricture. The majority of carcinomata which follow long-standing infection and trauma occur in men of the rarer age and commonly at the usual site of stricture formation. Malignant disease is at times associated with urinary sinuses which generally result from urinary obstruction and extension of the malignant process. In an occasional case the formation of the fistula is possibly one of the determining factors in the development of malignancy.

One case of carcinoma of the male urethra is reported. The patient was 48 years of age and had a long-standing infectious urethritis and a urethral stricture requiring frequent dilations. The growth, which was about 1 cm. in diameter, was excised and later the continuity of the urethra was re-established by a vesical transplant. Five years later the patient was in good health.

In the female, primary carcinoma of the urethra is occasionally confused with carcinoma of the vulva and vaginal wall. In most cases primary carcinoma of the urethra develops in the mucosa. The primary neoplasm may grow slowly and cause only a few symptoms. Attention may be directed to the primary focus only by the discovery of a metastatic growth.

Three cases of primary carcinoma of the female urethra were treated at the Mayo Clinic. In one, the growth was cauterized with the actual cautery. This patient was without recurrence and perfectly well six years later. The second case was considered

too far advanced for surgical treatment. This patient was kept alive in comparative comfort for two years by means of large doses of radium. In the third case the inguinal glands were involved when the patient was first seen. The urethra and both inguinal areas were exposed to large doses of radium. Eleven months later the urethra was negative and there were no palpable glands.

Glandular types of malignancy are occasionally seen. Most of the adenocarcinomata which involve the urethra have their origin in neighboring glands.

Fibromyomata and other connective tissue tumors occur very rarely in the urethra. In the female, fibrous tumors generally cause few symptoms; they are small, covered with urethral mucosa, unattached to the peri-urethral tissues, and readily shelled out at operation. They may grow rapidly and attain an enormous size. If they are large they are usually attached to the urethra by a pedicle.

There was one case of fibroma treated at the Clinic. The tumor was removed, and three years later the patient was without recurrence and in good health.

Polyps and papillomata of the urethra are often seen. The majority are minute and usually the result of long-standing and tedious urethral infections. They have very little clinical importance and generally respond readily to fulguration or snaring. In some cases the papillomatous growths may be very extensive, completely obstructing the urethra.

Von der Osten-Sacken, E.: Amniotic Hypospadias (Amniotische Hypospadias). *Verhandl. d. russ. chir. Piragoff-Ges.*, Petrograd, 1922.

Apart from its clinical interest, the description of the author's case serves as a protest against the neglect of possible mechanical factors in favor of endogenous causes in attempts to explain congenital malformations. There was no hereditary tendency to malformation and nothing abnormal during the pregnancy or birth. The subject's general development is normal, although at the age of two and a half months he still shows a tendency to assume the fetal posture. The legs are crossed and the right leg lies nearer the trunk, the heel touching the left inguinal region where the descent of the testicle has not yet taken place. The first and second toes of the right foot approach the toes of the other foot and exhibit rudimentary nails. The left foot has a sharply pronounced calcaneovalgus with a convex plantar surface. The skin of the lateral dorsal concavity is stretched and smooth. The great toe has a whitish granule instead of a distal phalanx. The second and third toes have grown together at their tips and are separated from the others by grooves due to compression. The other toes are normal. The leg shows a deep circular compression groove with a raised base 0.5 cm. wide.

In the intra-uterine posture the malformations of the toes and the compression groove of the leg lie in a straight line. On continuing this line toward the trunk one strikes the penis, raised

toward the left, the raphe of which toward the glans also deviates to the left, widens irregularly, and passes over into the prepuce, which is tucked up along the coronary sulcus. The cleft-shaped external orifice is normally placed, but merely indicated. The hypospadiac urethral opening in the region of the frenulum is separated from the raphe by an area of atrophic skin.

Above the umbilicus are the amniotic malformations of the fingers. The parts situated away from the median line are normal. Among other parts, the proximal phalanx of the left thumb is missing. The stump, which was covered by wrinkled skin and was usually in contact with a little knob of skin on the distal phalanx of the third finger, showed on ablation an axial cartilaginous center. There are no other abnormalities.

The genesis of this condition was doubtless determined mechanically by abnormalities of the amnion causing pressure and by the action of a cord from the periphery to the umbilicus. With regard to the immediate cause, one can only suspect an eclampsia which terminated the first pregnancy. With the exception of a case of Goldmann's, no cases of amniotic hypospadias have been published.

VON DER OSTEN-SACKEN (Z)

Fischer, A.: A New Operation for Hypospadias and Defects in the Pars Pendula of the Urethra (*Neue Methode zur Operation der Hypospadias und der Defekte der Pars pendula urethrae*). *Zeitschr. f. Chir.*, 1922, xlix, 399.

The operation described is begun with an external urethrotomy at the perineum, through which the urine is diverted for one week. The defect in the urethra is then closed by two Duplay flaps cut from beside the channel and sutured over a catheter with fine catgut. On the scrotal side of the flap the skin of the scrotum is incised through the middle and turned back laterally so that the wound side of the newly formed urethra may be fitted and sutured to the wound surface on the scrotum.

Three or four weeks after this operation the penis is separated from the scrotum again by cutting through the fold of skin which appears when the two are drawn apart. This division is made 5 or 6 mm. from the urethra, the position of which is marked by a sound. The margins of this wound are joined under tension at the penis and scrotum.

GEIERT (Z).

GENITAL ORGANS

Miljsberg, W. A.: The Prostate and Prostatic Hypertrophy (*Prostata und Prostatahypertrophie*). *Nederl. Tijdschr. v. Geneesk.*, 1922, lxxvi, 1879.

Comparative investigations regarding the male sexual organs of the ape and man have shown that the middle lobe of the prostate must be looked upon as a special part of this gland. In the newborn the prostate consists of five parts separated by strands of connective tissue: the middle lobe, the two

lateral lobes, and the posterior and anterior lobes, which coalesce in later life.

In the higher apes the prostate consists of two lobes, the cephalic and the caudal. The cephalic is much more developed than the caudal, encircles the ejaculatory duct like a broad ring, and in position and origin corresponds to the middle lobe in man. The middle lobe in man is rudimentary and lies with the para-urethral glands between the ejaculatory duct and the posterior wall of the urethra. In this regard the prostate of the gibbon presents a transition stage.

Hypertrophy of the prostate, an affection of advanced life, is to be regarded partly as a phenomenon of inflammation, such as tumor formation, hypertrophy, or hyperplasia. According to Halban and Tandler, the growth of the gland proceeds from the middle lobe. Tores believes that the para-urethral glands are responsible for the enlargement. In the opinion of the author, its origin must be sought in the conditions of development of the gland. As is well known, the growth of the prostate is closely connected with the state of development of the testicles. Castration in a young male stops the growth of the prostate. The development of the middle lobe is slow in man because of retarding influences exerted by the hormones; in the ape, on the contrary, it is progressive. In later life, after the endocrine secretion has abated, the prostate in man, simulating that in the primates, begins to grow more vigorously. In this growth the para-urethral glands take the leading part.

As treatment of prostatic hypertrophy the author proposes early implantation of portions of healthy testicle. This, he believes, is better than the organotherapy of Karo which consists in the injection of testiculin obtained from glands of a different species.

DUNKER (Z)

Bumpus, H. C., Jr.: Cancer of the Prostate: a Comparison of Results Obtained by Radium and Surgical Treatment. *Surg., Gynec. & Obst.*, 1922, xxxv, 177.

In judging the results of the use of radium in the treatment of malignancy they are usually compared with those obtained by surgery, the unit of measure being the number of patients who have lived free from symptoms an arbitrary number of years after treatment. Such a method of comparison allows a wide margin of error as patients treated by radium are seldom in so good a general condition as those treated by surgery. This fact explains in large measure current misconceptions regarding the effectiveness of radium therapy.

Carcinoma of the prostate often becomes very extensive and even metastasizes before urinary symptoms call attention to its presence, and in 28 per cent of all cases metastasis to the bones is present; hence cases are rarely presented for treatment in the initial stages.

Before 1915, when radium was first used in the Mayo Clinic, patients with carcinoma of the pro-

state who were in sufficiently good physical condition were operated on. Since 1911 only those in whom the malignancy was so slight that a definite diagnosis could not be made have been referred for operation, the latter being advised in the hope that if malignant cancer was present it might be removed completely.

In discussing results, cases in which malignancy was not suspected until it was discovered by the pathologist after the removal of a supposedly benign gland, and those in which operation was performed because of suspected malignancy of the prostate will be referred to as early cases. There were seventy-two in this group. Cases in which the disease was so far advanced as to render clinical diagnosis certain will be referred to as advanced cases; of these there were seventy-seven.

Contrary to expectation, it appears that there is little difference in the final results in the two groups. Moreover, the mode of operation would not seem to be a factor in the results as the perineal and suprapubic operations were employed about equally in both groups.

The microscopic findings as to the relative degrees of malignancy are the determining factor in the prognosis. If the malignant cells are partly differentiated, are fairly regular in size and shape, and retain the characteristic, long tufted ends, the outlook is much more favorable with regard to the subsequent duration of life than if the cancer cells show little or no tendency to simulate the normal type and occur irregularly dispersed throughout a fibrous tissue stroma, even though the malignancy is slight.

One hundred and twenty-four patients subjected to partial prostatectomy for carcinoma are compared with 132 who were treated with radium. The 124 patients comprise all those operated on, irrespective of the extent of the malignancy or the amount of malignant tissue removed, and the 132 patients treated with radium represent all forms of radium treatment administered in all stages of the disease, except when metastases was demonstrable.

Most of the operative work was done more than six years ago, while all of the radium treatment has been given within the last six years.

If the cases of patients who died are considered as completed cases, there are 106 such cases in the surgical group and 118 in the radium group. In the surgical group the average length of life after treatment was twenty-one and sixty-seven hundredths months, and in the radium group, twelve and thirty-six hundredths months. This difference is due apparently to the better physical condition of the surgical patients. In the surgical group 60 per cent, and in the radium group 81 per cent, died during the first two years. Again the difference is attributable to the same cause.

In 341 patients with carcinoma of the prostate who were examined at the Mayo Clinic and not treated the average duration of the disease was thirty-two months from the first symptoms to

death which occurred an average of ten months after examination. In the surgical group the duration of the disease averaged fifty-seven months, and the patients lived an average of twenty-seven months after the operation. In the radium group such a comparison would be misleading because of recent treatments, but it is interesting to note that the twenty-nine living patients treated with radium prior to January, 1911, average twenty-eight months of life after treatment, and that the average duration of their disease has been prolonged to fifty-eight months. Seventeen per cent of the patients treated with radium have lived more than two years after treatment. During this period 92 per cent of untreated patients died. Although of the patients treated surgically twice as many are alive at the end of each year as of those treated with radium, there are twice as many of the latter alive as there are untreated patients.

The efficiency of surgery is best portrayed by the fact that after six years all untreated patients were dead, while 11 per cent of those treated surgically were living, and at the end of nine years 9 per cent are still alive. Radium is applicable to a greater percentage of cases than surgery, and in these will increase the duration of life. A wise selection of patients must be made and the fact recognized that in order to radiate the entire lesion sufficiently it is necessary to use all methods of application with minimal doses of radium. The number of points from which radiation is directed is as important as the dosage.

Berberich, J., and Jaffé, R.: The Testicles in General Diseases; with Special Consideration of the Behavior of the Interstitial Cells. (Die Hoden bei Allgemeinerkrankungen; mit besonderer Berücksichtigung des Verhaltens der Zwischenzellen). *Frankfurt. Ztschr. f. Path.*, 1922, xxvii, 395.

Following a review of the literature Berberich and Jaffé discuss the question as to when signs of degeneration are found in the testicle in the various diseases and whether or not the interstitial cells are increased.

On the whole, the authors accept the theory of Goette who recognizes four grades of injury of the testicle. The first grade is characterized by disappearance of the spermia and spermatids, the second by destruction of the spermiocytes, the third by destruction of the spermiogonia, and the fourth, the most severe, by destruction of the epithelium and the Sertoli cells.

They state that they ascribe particular importance also to the fat in the Sertoli cells. That this fat is physiological was shown by the examination of the bodies of persons who died from accidents or acute diseases.

Normally, the number of interstitial cells is small. The view that an increase should be regarded as an expression of a reparative endeavor on the part of the organ, as suggested by Snieve and Kyrle, is not shared by the authors as they very frequently

found numerous interstitial cells in the absence of any signs of repair in the canals. They found also that the variation in size of the interstitial cells is physiological; therefore they cannot agree with Steinach who considers the larger cells as "F-cells." According to the Frankfort investigators, a lipid and fat content is typical of interstitial cells.

The authors examined the testes of seventy-one men who died between the ages of 17 and 56 years and twenty-eight men who died after the fifty-sixth year of age. In these groups there were six and three, respectively, with fibrosis of the testis. Of the twenty-one cases of the first group, in which death was due to an acute disease, atrophy of the testis was found in only two cases and in these was only of the first grade. One was a case of pneumonia and the other a case of typhoid fever. Only spermiogenesis had been injured. In ten cases an increase of the interstitial cells was observed but in nine others of the series it was not noted. In most of the cases the testicles of the men who died of cachexia due to a chronic condition between the seventeenth and fifty-sixth years of age (50 cases) showed an increase in the interstitial cells but only half of them showed an injury to spermiogenesis.

The quantity of fat is not influenced by disease or the number of the interstitial cells, but in the presence of very numerous interstitial cells the fat border zone was usually less than in cases with few interstitial cells with a low fat content. This finding, however, was not constant. On the other hand, the testes of older men (over 56 years), even those who died from acute disease, showed a constant and distinct injury of spermiogenesis, regardless of the state of nutrition, and no specially marked increase of interstitial cells poor in lipid. In the testes of twenty chronically diseased men over 56 years of age, fifteen of whom were very cachectic, there was usually, in addition to senile changes, a more or less severe injury of spermiogenesis and the interstitial cells were few and poor in lipid.

In six cases of fibrosis of the testis (formerly called "orchitis fibrosa") there were usually, in addition to syphilis, circulatory disturbances of an arteriosclerotic nature.

As long as interstitial cells are present their relationship to internal secretion and libido cannot be determined. Not a single case of absence of the cells was found; therefore the authors refuse to take any stand in this matter.

In two cases of inguinal testis, one treated surgically and the other found at an autopsy, no signs of spermiogenesis were seen by the authors. Many of the canals contained only a single layer of epithelium and others were recognizable only from their broad hyaline wall. The canals were small and markedly dehiscent because of the marked oedema of the connective tissue. The interstitial cells were extraordinarily abundant and lay massed in large clumps. In the first patient, a man 54 years old, they were very rich in lipid, while in the second, a man 46 years old, they were poor in lipid and

separated by haemorrhages. In the first case, the normal testis showed good spermiogenesis, but the canals were separated by oedematous connective tissue and the interstitial cells were abundant and rich in lipid. The authors believe that here, as in fibrosis of the testicle and atrophy of the testis caused by chronic alcoholism, the increase in the interstitial cells should be considered as a compensatory hypertrophy for the destroyed seminal canals. In chronic alcoholism a severe injury with a simultaneous marked proliferation of the interstitial cells was found; the libido and generative power remained unchanged.

The authors observed one case of unilateral castration in which the one testis was removed for carcinoma of the epididymis a year before death. The man was extremely cachectic and had multiple metastases. The testis was small, spermiogenesis was good, and the interstitial cells were few and rich in lipid. Therefore, according to the authors' view, neither the castration nor the cachexia caused any change in the testis. The findings in other reported cases of semi-castration showed no important changes in the remaining testis.

The authors therefore come to the conclusion that a relationship between certain diseases and certain changes in the testicle is not demonstrable. In young persons there is usually no injury of spermiogenesis, but frequently, especially in the rare cases of trauma, there is an increase in the interstitial cells. In more advanced age, on the other hand, spermiogenesis is injured by acute as well as by chronic diseases and the interstitial cells show an increase only rarely. There seems to be a relationship between the fat border zone and the fat content of the interstitial cells, for when there is an abundance of fat in the one there is a lack of fat in the other and vice versa. The increase in the interstitial cells cannot be regarded as a sign of regeneration, but is possibly a substitution process for destroyed seminal epithelium.

A trophic function of the interstitial cells cannot be excluded, but the authors consider it improbable. Neither do they recognize a resorptive function. In their endocrine function, the cells probably do not affect the sexual sphere directly, but stand in a reciprocal relationship to the other endocrine glands. As the endocrine system plays an important part in the protection of the body, an increase in the interstitial cells might be explained on this basis. When in advanced age the body has no further power, the increase is absent.

As in all of the cases which came under observation there was no case of normal libido and potentia coeundi in which all of the seminal canals, including the Sertoli cells, were destroyed and therefore only interstitial cells were present, or all the interstitial cells were destroyed and the seminal canals and Sertoli cells were intact, the authors believe they are not justified in drawing any conclusion with regard to the question of internal secretion.

ROSENBERG (Z).

Grignani, R.: The So-Called Cystic Disease of the Testicle (*Enferma cística, malattia cistica del testicolo*). *Ann. ital. di chir.*, 1922, i, 182.

Cooper in 1854 applied the term "cystic disease of the testicle" to a particular type of tumor constituted essentially of cysts of various sizes. Grignani has studied a case of agglomerated cysts in the right testicle of a man 47 years of age. The histologic findings are described in detail and illustrated. The conclusions drawn from this study are as follows:

1. This tumor may be regarded as the so-called cystic disease of the testicle and from the anatomopathological point of view classified as an embryoma of the mixed tumor type. From the clinical point of view this type of tumor may be considered as benign but under the influence of some cause still unknown may easily assume a malignant character, connectival or epithelial.

2. It probably originates from the inclusion and development of isolated blastomeres.

3. It is desirable to designate it as "cystic disease of the testicle" as by this term it is differentiated from other testicular tumors. W. A. BRENNAN.

Connor, F. P.: Malignant Disease of the Retained or Imperfectly Descended Testis. *Indian M. Gaz.*, 1922, lvi, 283.

On the basis of his experience Connor concludes that the imperfectly descended testis is especially predisposed to malignant disease, although he believes that malignant disease of the testis is of embryonic origin. These malignant growths are extremely virulent and the most radical operation seldom prolongs life for more than a short time.

Connor reports three cases, two of inguinal and one of abdominal arrest of the testicle. All were operated upon, and the growth was reported as a soft sarcoma in every instance. All of the patients died from recurrence within four months after the operation. Because of the liability of the undescended testis to malignant disease every undescended testis should be operated upon before the eighth year of age. B. F. ROLLER, M.D.

Garvin, C. H., and Carson, S. L.: Carcinoma of the Undescended Abdominal Testicle—Report of a Case. *J. Nat. M.*, 1922, xiv, 139.

The patient was a colored man 38 years of age, a laborer, who was admitted to the hospital October 1, 1914. His family and personal history were negative, and there was no history of an injury. Complaint was made of a painless swelling in the lower part of the abdomen on the right side which was first noticed about four months previously when it was about the size of a hen's egg. It had been painless from the beginning but had grown rapidly and at the time of the examination at the hospital seemed to press on the bladder. Urination was sometimes painful and difficult, and occasionally there was temporary retention. Recently there had been a feeling of heaviness and weakness in the lower abdomen and back. Other

complaints were a marked loss of weight, a poor appetite, and general weakness.

The lungs and heart were found to be normal and the Wassermann reaction and urine examination were negative. The left testicle was normal but the right testicle was undescended. Just to the right of the midline between the umbilicus and the symphysis pubis was a projecting mass which measured 4 by 4 in. There was no tenderness or discoloration of the skin. The mass was slightly movable and firm, and appeared to have a definite outline. A diagnosis of sarcoma of the undescended abdominal testicle was made and immediate operation advised.

The mass was removed under ether anesthesia. Its capsule was not complete but the adhesions were easily broken up. A number of glands in the neighborhood of the tumor were also removed.

Convalescence was uneventful, the patient being allowed to get up on the tenth day and discharged four days later.

The pathologist reported the specimen to consist of a testicle occupied by a new growth. On section the main mass of tissue was found to consist of carcinomatous areas with other areas suggesting sarcoma. The patient died six months later, probably of intra-abdominal metastasis. Autopsy was not allowed.

A thorough review of the literature shows that the theory that the undescended testicle is prone to malignancy is not based upon reported cases. Da-Costa is quoted as stating that 10 per cent of testicles involved by sarcoma are undescended testicles. C. D. HOLMES, M.D.

Kreuter, E.: Transplantation of the Testicle and Homosexuality (Hodentransplantation und Homosexualität). *Zentralbl. f. Chir.*, 1922, xix, 533.

Although the experiments of Foerster, Stanley, Enderlen, and the author have shown beyond a doubt that the transplanted testicle atrophies, cases have been reported in which homosexuality was cured by testicle transplantation. Kreuter believes that a large number of these cases are not to be regarded as cases of specifically functioning generative glands, and has endeavored to throw light on the problem by reversing the experiment. He transplanted into an individual who, despite bilateral castration, retained heterosexual feelings, a testicle obtained from a pronouncedly homosexual person which was shown by microscopic examination to be completely normal. In spite of uneventful healing, the result was negative. An attempt made at the same time to cure the homosexual individual by replacing the removed testicle with the undescended testicle of a 20-year-old man had caused no change at the end of three weeks.

The author is convinced that the effect of testicle transplantation is due to suggestion and that the transplantation has no influence which can be ascribed to internal secretion. GERLACH (Z).

Heller, J., and Sprinz, O.: Contributions to the Comparative and Pathologic Anatomy of the Colliculus Seminalis (Beiträge zur vergleichenden und pathologischen Anatomie des Colliculus seminalis), *Zschr. f. urol. Chir.*, 1921, VII, 196.

The colliculus seminalis consists of a tissue rich in smooth muscle fibers which in isolated areas possesses a variously developed cavernous tissue. The superficial mucosa, which lies in folds, contains recesses and therefore in the endoscopic picture often appears papillomatous. The prostatic utricle which opens at the summit of the colliculus seminalis varies in its dimensions: it may be as long as 1.2 cm. and as broad as 1 cm., or, when there is cyst formation, even larger. The ejaculatory ducts are surrounded by a layer of circular muscle fibers which are contractile in their entire extent. The corpus cavernosum which Ruediger described as situated at the orifice and believed to play an important part in erection and ejaculation could not be found by the authors. Neither were they able to find the spermatic sphincter described by Porosz.

COMPARATIVE ANATOMY

The authors review the structure of the prostate and the utricle as described by Disselhorst and Schmaltz. From the observations of Heller and Sprinz on the normal and comparative anatomy, which are reported in the form of illustrations with short legends, the following conclusions may be drawn:

Transverse section shows a markedly indented mucosa, gland formation immediately beneath this mucosa, and in the latter numerous corpora amylacea in various stages of development. Cavernous spaces, and therefore a corpus cavernosum of the verumontanum itself, are probably simulated by secondary hemorrhages in the atrophying glands. Numerous pictures of the verumontanum of the dog, monkey, bull, ox, boar, pig, ram and sheep show disappearance of the projections, fossae, and villi of the mucosa as a characteristic change of the verumontanum following castration. Instead of a broad mound, the colliculus forms a conical process.

PHYSIOLOGY

The authors cannot agree with the American authors, Rosen and Rytina, who speak of a physiology of the colliculus and consider the latter as an important endocrine gland. The function of the colliculus in the sexual act as described by Porosz is discussed on the basis of the anatomy.

PATHOLOGIC ANATOMY

The pathologic changes of the colliculus which appear striking on macroscopic examination and lead to microscopic examination are very rare. Heller, who discusses the pathology of the colliculus mainly on the basis of specimens in the Berlin Pathological Institute, stated that he could determine no other change than tuberculosis. The abnormalities and diseases, as observed up to the pres-

ent time, include adenomatous proliferation of the utricule glands, cyst formation in the colliculus, and valve and hymen formation in the prostatic portion, originating from the colliculus.

The authors discuss acute inflammation of the colliculus only briefly as they were unable to make histologic examinations. Because of the danger of cicatrization of the excretory ducts of important organs they discountenance biopsy and the therapeutic excision of portions of the colliculus as advised by Rytina. In a case of malakoplakia of the bladder a very cystic utricle was found. In the body of a patient who died from heart disease five weeks after a gonorrhœal infection dilated prostatic excretory ducts, enlargement of the papillae of the mucosa, and submucous infiltration or abscess foci were found. Heller also observed a non-gonorrhœal pyæmic abscess of the colliculus. Contrary to the view of Thompson and Dittel, gonorrhœal strictures of the posterior urethra do occur, although they are very rare. In the collections at Berlin and Munich Heller found only two specimens showing this condition (Simmonds, Hamburg); the colliculus was greatly changed by the formation of cicatrices. Traumatic changes of the colliculus are also very rare.

The investigations of Heller regarding associated disease of the colliculus or the utricle, respectively, in prostatitis showed that the claim made by Porosz that the utricle is involved is not correct; in agreement with Wossido, Lohnstein, and Buerger, he found that enlargements, hyperæmia, and inflammation of the colliculus are not so frequent as would appear from direct endoscopy. Isolated tuberculosis of the colliculus has not been discovered at autopsy, but tuberculous changes with other urogenital tuberculosis was seen. The papilloma-like new growths of the colliculus floating in the endoscopic picture do not have the anatomical structure of polyps of the mucous membrane; they are rather adenomatous proliferations of the tissue of the colliculus. On the whole, one should guard against considering as pathologic small villous growths which appear enlarged in the endoscope as a result of magnification. Because of the folds in the mucosa of the colliculus small portions are demarcated in both animals and man so that they create the impression of a pathologic new growth and have often been treated as such. Only growths which show pronounced floating in the endoscope should be considered true polyps.

The corpora amylacea of the prostate originate especially often and in great numbers in the colliculus. A relationship between the formation of prostatic bodies and stone formation seems very doubtful to the authors as the great frequency of corpora amylacea is in direct contrast to the rarity of stone formation. Atrophy of the prostate shows no effect upon the colliculus in the majority of cases.

The chapter on the relationships of the colliculus to prostatic hypertrophy is relatively short, and the

views of Taubler and Zuckerkanll are not mentioned. In the authors' opinion the colliculus is usually unchanged microscopically in prostatic hypertrophy. The spreading of malignant tumors of the prostate to the colliculus is very rare. *Prostatitis* (Z).

MISCELLANEOUS

Quinby, W. C.: *The Diagnosis of Disease of the Urinary Tract*. *Bailey M. & S. J.*, 1922, eleven, 229.

Quinby states that in no branch of major surgery are the methods of arriving at an accurate pre-operative diagnosis so numerous and so reliable in their detailed findings as those applied to diseases of the urinary tract.

He gives the history of fourteen cases, clearly defining data obtained by means of the X-ray, and then thoroughly analyzes each case.

The following working rules are suggested:

1. Do not rush to the use of such modern diag-

nostic aids as the cystoscope before taking a detailed history and making a thorough general physical examination.

2. Examine the urine, especially for microscopic amounts of pus and blood, but do not conclude that if the urine is normal the possibility of disease in the urinary tract is excluded.

3. Look with the eye of a keptic on all shadows in the plain X-ray plate which seem to mean lithiads within the urinary passages until such shadows have been proved by further measures to be in fact within these passages.

4. The accurate and early determination of the exact source of pus or blood in the urine is imperative. This can be satisfactorily accomplished only by the use of the cystoscope and ureteral catheter.

5. The data shown by the pyelogram are frequently of the greatest importance. Pyelography should therefore be carried out frequently, often as an aid in elucidating the source of abdominal pain whatever its location.

Louis Gross, M.D.

SURGERY OF THE EYE AND EAR

EYE

Franklin, W. S., and Horner, W. D.: Hernia through Tenon's Capsule with Extrusion of Orbital Fat, a Birth Injury. *Am. J. Ophth.*, 1922, v, 601.

This article is very interesting from several standpoints: (1) the condition was correctly diagnosed before operation, as proved by microscopic examination of a section taken at the time of operation; (2) both eyes were similarly affected, one in the upper inner, and one in the lower inner, quadrant; (3) the patient was 3½ years of age and because of the puffiness of the lids due to the herniated masses had been examined repeatedly for kidney and heart lesions; and (4) a careful survey of the literature revealed no report of a similar case.

THOMAS D. ALLEN, M.D.

MacGillivray, A.: Subconjunctival Cataract Extraction. *Brit. J. Ophth.*, 1922, vi, 351.

The author refers to previous articles in which he drew attention to the usual extraction of cataract as a non-scientific procedure because it leaves a large wound without protection.

After discussing several methods of subconjunctival extraction dating back to Alexander's publications in 1825, MacGillivray describes the method he used in his last 300 cases. The technique of this operation is as follows:

The conjunctiva is secured with fixation forceps just below six o'clock and the patient is made to look downward constantly until the operation is completed. The knife is inserted in the temporal margin 1 mm. back of the limbus and 1 mm. above the horizontal diameter and passed horizontally through the chamber to the corresponding point on the opposite side. The incision is carried upward in the usual way but, without dividing the conjunctival bridge at this point, the knife is directed backward and by one or two sawing movements the conjunctival bridge is continued upward for a distance of about 12 mm. The lens capsule is broken, one lens is removed in the usual way, all cortical debris is removed, and the chamber is irrigated if necessary with isotonic salt solution. The iris is then stroked back into position, pilocarpine is instilled, and the wound dressed.

JAMES P. FITZGERALD, M.D.

Smith, T. F. S.: Extraction of the Lens in Its Capsule. *Indian M. Gaz.*, 1922, lvi, 253.

Smith confines his remarks mainly to correcting certain erroneous impressions regarding the technique necessary in cataract operations. He believes extensive pre-operative preparation is useless. He uses a 5 or 6 per cent solution of cocaine once, then clips the outer eyelashes of the upper lid with the

scissors so that the knife can be passed across the eye without touching it, then washes the lids and brow with a 1:2,000 bichloride of mercury solution, inserts the speculum, and washes out the conjunctival sac. He does not tell the patient to look this way or that, but makes him look in whatever direction he desires by means of the fixation forceps.

Most surgeons hold the knife too tightly and too near the blade. Smith discusses the incision in detail. At the end of the incision the iris is very apt to be caught on the blade and the surgeon is very apt to cut quickly. This is wrong. Unless the incision is made very slowly the lens and vitreous may both be injured. In the iridectomy the iris should be caught lightly with the iris forceps because if pinched tightly the patient will wince. To prevent tearing away the whole iris care must be taken not to pull it out too far during the cutting.

In the removal of the lens the position of the assistant is extremely important. The assistant should stand at the left of the patient and hold the lower lid down with his left thumb and the upper lid away from the eye and somewhat down with a lid retractor. Smith describes the extracting of certain kinds of lens by tumbling.

In the toilet of the eye the replacement of the iris is exceedingly important. This membrane is very apt to adhere to the upper edge of the wound but may be freed with the iris retractor before the eye is closed.

T. D. ALLEN, M.D.

Holland, H. T.: Some Contra-Indications to the Intracapsular Operation for Cataract Based on 8,000 Cases, by an Intracapsular Operator. *Indian M. Gaz.*, 1922, lvii, 296.

Holland is a pupil of Smith, but differs somewhat from his teacher with regard to the contra-indications of the "Indian Smith" operation. Smith states that there are three classes of cases unsuitable for intracapsular extraction: (1) cases of congenital cataract, (2) juvenile cataracts up to the thirtieth year of age; and (3) cases of after-cataract, also called secondary cataract.

Holland adds the following: (1) the large prominent "ox eye" in plethoric persons; (2) ordinary cases in which legitimate pressure does not rupture the zonula; (3) cases of double cataract in persons between 35 and 50 years of age or young persons with dark hair in whom the zonula often proves very resistant; (4) cataract associated with glaucoma, in which there is distinct danger of choroidal hemorrhage; and (5) traumatic cataract in which often the hyloid membrane was ruptured by the blow that caused the cataract.

T. D. ALLEN, M.D.

EAR

Burton, F. A.: Two Cases of Otiobiosis. *Am. J. Surg.*, 1927, 33:393, 371.

Burton reports two cases of ear tick disease, the characteristic symptoms of each being chiefly impairment of hearing. There was no pain and no tinnitus, and only in the second case was there bleeding from the ear.

The first specimen removed was a female "net tick," *arachnida isodide dermatontor reticulatus*, and the second an "ear tick," *arachnida isodide orulthoborus magnus*.

Both types are native to California, Arizona, Texas, and Nevada. FRANK J. NOYAR, JR., M.D.

Junod, A.: Primary Malignant Tumors of the Middle Ear (*Unter der primären bösartigen Geschwulst des Mittelohres*). *Schweiz. med. Wchnschr.*, 1927, 53, 310.

The rarity of primary malignant tumors of the middle ear is shown by the fact that only six such cases came to the Basle Clinic in twenty-five and one-half years, a period in which about 45,000 ear cases were treated. The author discusses these six cases with the aid of extracts from their histories. In three cases the tumor was a carcoid.

Although the normal middle ear nowhere shows stratified pavement epithelium, all the cancers of the middle ear heretofore reported were carcoids. This may be explained by the fact that they were preceded for years by middle-ear suppuration due to an infection such as scarlet fever or tuber-

culosis which, because of the marginal location of the perforation, led to a cholesteatoma giving rise, in exceptional cases, to a secondary carcoid formation.

A sarcoma was observed twice and an endothelioma once; these growths usually develop in a previously healthy middle ear. The sarcomata appeared in children and the cancers in adults; the patient with the endothelioma was 70 years old.

The most prominent symptom is severe headache. Attacks of vertigo were present in only one case although as a rule the vestibular apparatus is also involved. Undoubtedly the labyrinth is destroyed so rapidly by the fetid suppuration that the circumscribed labyrinthitis does not last long. Deafness results from the destruction of the internal ear. The facial nerve was involved in four cases; facial paralysis may be the first symptom of this condition. Also in four cases there were granulations with suppuration in the auditory canal, a condition revealed by histologic examination.

Wide opening of the mastoid process, the aditus, and the tympanic cavity usually fails to effect a cure. Prolonged freedom from recurrence after the operation is observed only after sarcoma and endothelioma. Irradiation therapy also should be used. It is a remarkable fact that the degeneration of the neighboring glands occurs late and distant metastases are very rare. As a rule, cachexia, and more rarely, a suppurative meningitis, causes death.

BRUNNER (Z).

SURGERY OF THE NOSE, THROAT, AND MOUTH

NOSE

Nager, F. R.: Intranasal Encephaloceles (Ueber intranasale Encephalocelen). *Schweiz. med. Wchnschr.*, 1922, III, 516.

The basal forms of cerebral hernia may be easily confused with intranasal tumors. The sphenopharyngeal and palatine meningoceles are observed almost exclusively in the newborn. The purely intranasal transthemoidal forms are very rare. The author reports briefly six cases recorded in the literature and gives in detail the history of a case of his own.

Nager's patient, a boy 7 years old, had suffered since an early age from obstructed nasal breathing. About four years previously the mother observed a fleshy tumor in the right nasal cavity. Three years before, a broad sessile tumor as large as a cherry was removed by a specialist from the anterior upper part of the septum with the cold snare, an operation followed by considerable hemorrhage. The following year the removal of a recurrence caused the drainage of a light serous fluid. After the operation, meningitis developed and pneumococci were demonstrated in the spinal fluid. A cure was eventually effected by large doses of urotropin and repeated lumbar punctures. A second recurrence was not attacked surgically as in the meantime the diagnosis of meningocele was established. The mass was distinctly compressible. Ultimately a cerebrospinal fistula formed the port of entry for a streptococcus infection to which the boy succumbed.

Autopsy revealed a sac-shaped protrusion of the dura through an opening immediately in front of the anterior portion of the lamina cribrosa. The meningocele was still free from the cerebral tissue, but showed extensive inflammatory changes caused by the previous operations and meningitis.

BRUNNER (Z).

THROAT

Ujj, S.: A Cured Case of False Route Due to Intubation (Ein geheilter Fall von "fausse route" in Folge von Intubation). *Orvosi hetil.*, 1921, LXV, 378.

In a neuropathic child 7 years old who suffered with croup and in whom the first intubation with a No. 5 tube followed a smooth course, only a smaller tube (No. 4) could be introduced at a second intubation, and at a third the obstruction produced by a spasm of the glottis could be overcome only with difficulty with a No. 3 tube. Unfortunately a false passage also was formed, the end of the tube becoming visible and palpable at the level of the cartilaginous ring under the skin. An immediately performed tracheotomy resulted in a successful outcome.

VAS (Z).

MOUTH

Cates, B. B.: A Plea for Early Cleft Palate Operations. *Ann. J. Surg.*, 1922, XXXVI, 221.

For a long time it was the practice of surgeons to delay operation for cleft palate until the child had grown. Some recommended waiting until even as late as the fifteenth year. Today it is becoming generally believed that operation should be done early, the earlier the better.

The strongest argument for early operation is that in the first two or three months of life there is a minimum of calcium salts in the bones and therefore the bones can be more easily molded into normal position. Early operation insures a more natural voice and a correspondingly good velum with better function.

FRENCH K. HANSEL, M.D.

Combier, V., and Murard, J.: Abscess of the Tongue (Les abcès de la langue). *Presse méd.*, Par., 1922, XXX, 789.

The fact that the tongue which is exposed to so many bacteria has so few infections as compared with the tonsils, the hard palate, and the gums is due perhaps to the firm structure of its mucosa, its lack of movable submucosa, and its muscular structure. The acute infections of the tongue are superficial or involve the parenchyma at various depths. They usually form an abscess but in some cases there may be an oedematous fluctuation without pus. The abscess forms along the intermuscular spaces, in the midline, between the genioglossus, at the sides, or, according to Kilian, in the space between the hyoglossus and the genioglossus, the space through which the lingual artery passes.

Abscess of the tongue is most frequent in adult males. It may occur in cases of diabetes, variola, typhoid fever, and alcoholism, but more often is due to buccal infections, tonsillitis, dental infections, inflammation of the salivary glands, or parotitis. The infection is probably carried by the numerous lymph channels in this region. Its beginning is usually sudden. There is little or no trismus. The vertical diameter of the tongue is increased so that it almost touches the hard palate.

The authors describe two cases, in one of which the abscess was superficial and in the other deep. Both abscesses were opened by puncture with a closed Kocher forceps.

The swelling may be limited to a certain region in which the abscess can be delimited, or diffuse, the abscess being so deep that its limits cannot be ascertained. In one of the authors' cases the tongue filled the mouth and effort to move it was painful; the subhyoid region gave a sensation of deep induration, and there was a slight submaxillary adenopathy which was moderately painful. In some cases

abscesses of moderate size migrate toward the surface and open spontaneously or become absorbed, but such absorption may be incomplete, resulting in induration and hypertrophy or septic complications. The temperature is usually moderate, 38 degrees C.

It is important to make an early diagnosis, to find the position of the abscess, and to differentiate between a purulent process in the glosso-epiglottic region and a similar condition in the thyroglosso-epiglottic region. The latter may be diagnosed with the aid of the laryngoscope.

In early cases the authors recommend buccal and dental measures and hot packs to the subhyoid region, and if these are not successful, opening and draining of the abscess. There is usually little

bleeding. Hydrogen peroxide is very effective in arresting the hemorrhage.

The point of approach varies in different cases. When the abscess is not seen, the mouth is not the best route of approach, especially when the abscess is deep. In these cases the subhyoid route is advantageous. Chassaignac proposes the submaxillary route. For laterally situated abscesses Kilian recommends access through the hyoglossus with ligation of the lingual artery. Berckel regards the median subhyoid incision as the best and simplest to open an abscess which cannot be reached through the mouth. This gives good drainage and allows easy inspection after operation but may cause compression of the trachea.

HUBERT F. DUNN, M.D.

BIBLIOGRAPHY of CURRENT LITERATURE

GENERAL SURGERY—SURGICAL TECHNIQUE

NOTE.—The bold face figures in brackets at the right of a reference indicate the page of this issue on which an abstract of the article referred to may be found.

Operative Surgery and Technique

Pre-operative and postoperative treatment and care of patients. J. V. R. LYMAN. Wisconsin M. J., 1922, xxi, 45.

Some points in surgical technique. W. J. S. McKAY. Med. J. Australia, 1922, ii, 148.

Surgical dents. C. H. WHITEFORD. Med. Press, 1922, n.s. cxiv, 264.

Free skin transplantation. N. TAKAHASHI and R. MIYATA. Arch. f. klin. Chir., 1922, cxx, 170. [401]

Vomiting and distention after laparotomy lessened by the substitution of rubber envelope pads for gauze: the influence of ether, morphine and rectal therapy. D. BINSSELL. Surg., Gynec. & Obst., 1922, xxxv, 320. [401]

Anæsthesia

The influence of anæsthesia on the restoration of the volume of the blood after hæmorrhage and after transfusion. A. E. BOYCOTT and C. P. JONES. J. Path. & Bacteriol., 1922, xxv, 335.

The effect of the repeated administration of anæsthetics on blood catalase. W. E. BURGE. J. Am. M. Ass., 1922, lxxix, 345.

The relation of the anæsthetic to pulmonary abscess following nose and throat surgery. C. N. CHIPMAN. J. Am. M. Ass., 1922, lxxix, 539.

The suprarenal gland in anæsthesia. J. F. CORBETT. J. Am. M. Ass., 1922, lxxix, 543.

The effects of general anæsthetics on the liver. C. LA ROCQUE. Canadian M. Ass. J., 1922, xii, 566.

Ether as an anæsthetic. L. R. CACERES. Arch. d. Hosp. Municipal de la Habana, 1922, i, 183.

Ether addition in nitrous oxide-oxygen anæsthesia. H. H. POWERS. Dental Cosmos, 1922, lxiv, 863.

Methods to reduce the mortality in ether anæsthesia. W. C. HERMAN. Cincinnati J. M., 1922, iii, 237.

A nitrous oxide-oxygen ether apparatus. S. ROWBOTHAM. Lancet, 1922, cciii, 24.

Pharyngeal insufflation anæsthesia. A. H. MILLER. J. Am. M. Ass., 1922, lxxix, 441.

Local anæsthesia in general surgery. A. I. McKINNON. Nebraska State M. J., 1922, vii, 280.

Some advantages of local anæsthesia in abdominal surgery. L. E. LIXES. Colorado Med., 1922, xix, 168.

Local anæsthesia as a supplement to general narcosis. M. N. HADLEY. J. Indiana M. Ass., 1922, xv, 259.

A system of applying local anæsthesia. R. E. FARR. Illinois M. J., 1922, xlii, 101.

Some work with block and local anæsthesia. H. O. HOWITT. Canadian M. Ass. J., 1922, xii, 549.

Butyn: a substitute for cocaine. W. M. BEAUMONT. Brit. J. Ophth., 1922, vi, 316.

Spinal anæsthesia. J. R. GARNER. South. M. J., 1922, xv, 646.

Spinal anæsthesia and arterial pressure. ABADIE and MONTERO. Presse méd., Par., 1922, xxx, 786.

Sacral anæsthesia. J. J. RAVENEL. J. South Carolina M. Ass., 1922, xviii, 190.

Contributions to intravenous hedonal anæsthesia. S. A. MATSCHULES. Novy Chir. Arch., 1922, i, 526.

Rectal anæsthesia and its application. E. HORNER. Wien. med. Wchnschr., 1922, lxxii, 851.

Surgical Instruments and Apparatus

A bistoury with interchangeable blades. P. D'AVENAS. Rev. franç. de gynéc. et d'obst., 1922, xvii, 406.

A direct vision adenotome. I. D. KELLEY, JR. J. Am. M. Ass., 1922, lxxix, 300.

A practical trocar and cannula for removing ascitic fluid. W. W. DUKE. J. Am. M. Ass., 1922, lxxix, 134.

A new muscle clamp. J. L. DECOURCY. J. Am. M. Ass., 1922, lxxix, 463.

A new angular uterine dressing and sponge-holding forceps. A. M. CRANCE. J. Am. M. Ass., 1922, lxxix, 557.

A lumbar puncture needle for bacteriological work. H. R. DEAN. J. Path. & Bacteriol., 1922, xiv, 398.

A new type of recording spirometer. R. BURTON-OPITZ. J. Lab. & Clin. Med., 1922, vii, 681.

A portable apparatus for continuous oxygen administration. G. BOURNE. Lancet, 1922, cciii, 23.

SURGERY OF THE HEAD AND NECK

Head

The value of eye observations in fractures of the skull and severe head injuries. J. A. KEARNEY. N. York State J. M., 1922, xxii, 347.

The surgical treatment of cranial and intracranial injuries. J. E. J. KING. New York State J. M., 1922, xxii, 347.

Concussion of the brain and fracture of the skull. R. E. WHITEHEAD. J. Indiana M. Ass., 1922, xv, 264.

Meningeal hæmorrhage. CHAUFFARD. Med. Press, 1922, n.s. cxiv, 117.

Extirpation of one (the left) adrenal gland for the cure of epilepsy. H. FISCHER. Ann. Surg., 1922, lxxvi, 176. [402]

Cerebellar hernia. D. MCKENZIE. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Otol., 57.

The investigation of bodily functional capacity in persons with brain injuries. BAFFERT. Ztschr. f. d. ges. Neurol. u. Psychiat., 1921, lxxii, 259.

The significance of papilloedema in brain tumors. I. S. WECHSLER. N. York State J. M., 1922, xxii, 144.

Brain surgery in the occipital fossa. W. MINTZ. Arch. f. klin. Chir., 1922, cxix, 825. [402]

Irradiation of the hypophysis in hypophyseal tumors and in endocrinological diseases of hypophyseal origin. BEHREND. *München med. Wchnschr.*, 1922, lvi, 739. [402]

An unusual case of bone abscess and acute thrombosis. M. G. PETERSON. *Minnesota Med.*, 1922, v, 487.

Cerebral abscess complicating bronchiectasis. C. D. GORD. *Lancet*, 1922, viii, 177.

Report of a case of abscess of the transverse sinus with hemolytic streptococcal sepsis, operation and recovery. C. E. CURRIE. *Minnesota Med.*, 1922, v, 485.

Ocular cyst. A. N. COLLINS. *J. Lancet*, 1922, vi, 381.

Head rest for the pangleon operation. A. W. AMOS and G. G. LITTLE. *J. Am. M. Ass.*, 1922, lxxix, 305.

Division of the posterior root of the fifth nerve for trigeminal neuralgia. W. J. CLINE. *Med. J. Australia*, 1922, i, 325.

Wheeler skin-grafting operation applied to the excision of an epithelioma of the lower eyelid. H. H. M. LYLE. *Ann. Surg.*, 1922, lxxvi, 145.

The clinical history of tumors of the face and jaws as a guide to their correct diagnosis and proper treatment. W. D. GAYNE. *J. Indiana M. Ass.*, 1922, xv, 771.

Malignant conditions of the lary and neck. C. K. BORE. *Kentucky M. J.*, 1922, xi, 365.

Plastic surgery of the face. E. D. HIGHSMITH. *Ann. Surg.*, 1922, lxxvi, 129. [403]

The operative treatment of complete double harelip. V. VRADE. *Ann. Surg.*, 1922, lxxvi, 143.

Handlip and cleft palate deformities, some of the types and their operative treatment. W. B. DAVIS. *Ann. Surg.*, 1922, lxxvi, 131.

Ankylosis of the jaw and its treatment. BOCKENHIMER. *Deutsche med. Wchnschr.*, 1922, xlviii, 195. [403]

Double location of the lower maxilla, old and irreducible, treated by resection of the two condyles. PATEL. *Lyon chirurg.*, 1922, xix, 313.

A report of 156 cases of primary carcinoma of the mucosa of the mouth. H. KURTROD. *München med. Wchnschr.*, 1922, lvi, 771. [404]

Neck

Gummatous cervical adenitis. W. P. COLES. *Med. Press*, 1922, x, clix, 119.

Thyroid glands. H. C. CLARK. *Kentucky M. J.*, 1922, xi, 347.

The thyroid and its relationship to nervous and mental symptoms. C. R. BALL. *Minnesota Med.*, 1922, v, 333.

The value of basal metabolism determinations in the diagnosis and treatment of hyperthyroidism. H. P. STOLL. *Boston M. & S. J.*, 1922, cxxxvii, 197.

Röntgen therapy of hyperthyroidism. I. W. JENKINS. *Texas State J. M.*, 1922, xviii, 213.

The pathologic classification of lesions of the thyroid gland. J. B. WILSON. *Ann. Clin. Med.*, 1922, i, 44.

Goiter from the standpoint of the clinician. C. E. ERVIN. *Pennsylvania M. J.*, 1922, xxv, 769.

The goiter problem as it concerns the general practitioner. E. F. BUCKEL. *Wisconsin M. J.*, 1922, xxi, 87.

The prevention of simple goiter in man. O. P. KIMBALL. *J. Michigan State M. Soc.*, 1922, xxi, 184.

Goiter summary. C. M. ROSSER. *Texas State J. M.*, 1922, xviii, 196.

The pathology of goiter. A. C. SCOTT, JR. *Texas State J. M.*, 1922, xviii, 202.

The surgical treatment of goiter, with case reports. C. B. ERPS. *J. South Carolina M. Ass.*, 1922, xviii, 238.

The surgical treatment of goiter. J. E. QUAY. *Texas State J. M.*, 1922, xviii, 208.

Villous struma. E. NEUBER. *Orosképzés*, 1922, xii, 89. [404]

Basal metabolism as an aid in the diagnosis of toxic goiters. J. H. CANNON. *J. South Carolina M. Ass.*, 1922, xviii, 224.

The diagnosis and treatment of toxic goiters. C. J. LEMMON. *J. South Carolina M. Ass.*, 1922, xviii, 226.

Toxic adenoma of the thyroid gland. P. C. GUNBY. *Texas State J. M.*, 1922, xviii, 204.

The surgical treatment of exophthalmic goiter. J. A. HILL. *Texas State J. M.*, 1922, xviii, 205.

SURGERY OF THE CHEST

Chest Wall and Breast

The treatment of pleural empyema; empyema thoracis, suppurative and ossifying. R. KIRKACH. *München med. Wchnschr.*, 1922, lvi, 885.

Massive hyperplasia of the breasts. P. SYMS. *Ann. Surg.*, 1922, lxxvi, 300.

Tumors of the breast from the standpoint of the general practitioner and the general surgeon. A. D. BRYAN. *Illinois M. J.*, 1922, xlii, 81. [405]

The diagnosis of early breast tumors, based on their clinical picture as their gross and microscopic picture at the operatory incision. J. C. BLOOMSBOM. *Boston M. & S. J.*, 1922, cxxxviii, 193.

The surgical aspects of benign lesions of the breast. W. E. SUTCLIFFE. *New Orleans M. & S. J.*, 1922, lxxv, 47.

Carcinoma of the breast with a report of a rare case of mammary carcinoma. M. J. FORD. *Med. Herald*, 1922, xli, 221.

Carcinoma of both breasts simultaneous and pathologically different. H. L. NORTON. *Hahnemann Month.*, 1922, lvi, 426.

Trachea and Lungs

Superficial pulmonary infarct. A. R. SOUTHWOOD. *Med. J. Australia*, 1922, ii, 196.

A case of pulmonary abscess. D. GREENBERG. *N. York M. J. & Med. Rec.*, 1922, cxvi, 98.

Limited thoracotomy for lung abscess. P. SÁNTY. *Lyon chirurg.*, 1922, xix, 311.

Phrenicotomy in bronchiectasis. L. BOGENDORFER. *Therap. d. Gegenw.*, 1922, lxxii, 203. [405]

Consideration of the surgical treatment of bronchiectasis. E. A. GRAHAM. *South. M. J.*, 1922, xv, 639. [405]

Pulmonary gangrene. W. A. LUBARSKI. *Arch. klin. i. exper. Med.*, 1922, i, 63.

The treatment of pulmonary gangrene, with particular consideration of salvarsan. F. FEENHOLLER. *Deutsche med. Wchnschr.*, 1922, xlviii, 699.

Postoperative massive collapse of the lungs. F. J. HIRSCHOWITZ. *Am. J. M. Sc.*, 1922, clxiv, 268. [406]

Heart and Vascular System

A bayonet puncture wound of the heart. NIPPE. *Ztschr. f. d. ges. gerichtl. Med.*, 1922, i, 368. [406]

Pharynx and Esophagus

A contribution to the differential diagnosis of retropharyngeal tumors. E. RUCHMANN. *Schweiz. med. Wchnschr.*, 1922, lii, 491. [406]

Forty-one foreign bodies in the esophagus diagnosed and removed with the aid of esophagoscopy. E. OPPENKOPF. *Schweiz. med. Wchnschr.*, 1922, lii, 519. [407]

Esophagoscopy. M. C. MYERSON. *N. York M. J. & Med. Rec.*, 1922, cxvi, 82.

Diverticula of the esophagus. C. G. LUCAS. *Kentucky M. J.*, 1922, ix, 447.

An operation for diverticulum of the esophagus. F. KOENIG. *Deutsche med. Wchnschr.*, 1922, xlviii, 719. [407]

Experimental reconstruction of the esophagus with autogenous fascia lata transplants. D. S. ALLEN. *Ann. Surg.*, 1922, lxxvi, 157. [407]

Miscellaneous

Thoracoscopy and its practical importance, especially in surgery of the chest. H. C. JACOBÆUS. *Illinois M. J.*, 1922, xlii, 17.

The surgery of thoracic tumors. A. O. WILENSKY. *Am. J. M. Sc.*, 1922, clxiv, 573.

Postoperative complications of the respiratory tract. H. R. DECKER. *Canadian M. Ass. J.*, 1922, xii, 541.

Congenital diaphragmatic hernia. L. BLUMENFELD. *N. York M. J. & Med. Rec.*, 1922, cxvi, 131.

The casuistics of diaphragmatic hernia. A. PLENK. *Wien. klin. Wchnschr.*, 1922, xxxv, 339.

SURGERY OF THE ABDOMEN

Abdominal Wall and Peritoneum

An unusual case of congenital hernia. W. T. MCCONNELL. *Kentucky M. J.*, 1922, ix, 574.

A case of cecal hernia on the left side and appendicular femoral hernia on the right side. N. MAKEWEN. *Medizinische Monat.*, 1922, i, 153.

Mechanical ileus in direct strangulated inguinal hernia. P. BISHOP. *Am. Med. Ther.*, 1922, xvi, 105.

Strangulated right inguinal hernia containing the stomach and transverse colon. A. F. STOKES. *Med. J. Australia*, 1922, ii, 187. [408]

A modification of the Bassini-Hackenbruch operation for inguinal hernia. H. NEUFFER. *Zentralbl. f. Chir.*, 1922, xlix, 969. [408]

The anatomical and embryological study of the perineum. M. B. WESSON. *California State J. M.*, 1922, ix, 269.

Acute serous peritonitis. E. MELCHIOR. *Klin. Wchnschr.*, 1922, i, 1089.

An experimental study of circulatory failure in peritonitis. H. OLIVIERONA. *Acta chirurg. Scand.*, 1922, liv, 539.

The use of the quartz light in the treatment of tuberculous peritonitis. D. D. PLETNER. *Arch. klin. i exper. Med.*, 1922, i, 24.

Biliary peritonitis without perforation of the bile passages. A. S. MAKIMOWITSCH. *Novy Chir. Arch.*, 1922, i, 514.

Peritoneal echinococcosis: an analysis of twenty-five cases. K. D. FAIRLEY. *Med. J. Australia*, 1922, ii, 309.

Gastro-Intestinal Tract

The symptomatology of structural abnormalities of the gastro-intestinal tract in children. C. G. KERLEY. *Arch. Pediat.*, 1922, xxxix, 512.

The surgical treatment of gastroptosis. G. M. DATSOWSKI. *Wratschbeyi Vestnik Wologodskowo Gub-drawa i Rishskowo Wojennowo Gospitalja*, 1921, 19.

A clinical method of determining adhesions between the stomach and the gall-tract. B. B. V. LYON. *Surg., Gynec. & Obst.*, 1922, xxxv, 252.

Pyloric obstruction due to a gall-stone. GOULLIQUET. *Lyon chirurg.*, 1922, xix, 361.

Constitution and heredity in peptic ulcer of the stomach and duodenum. J. BAUER and B. ASCHNER. *Klin. Wchnschr.*, 1922, i, 1250, 1268.

The pathogenesis of chronic gastric ulcer. T. ARM-STRONG. *Beitr. z. klin. Chir.*, 1922, cxxvi, 390.

The medical management of peptic ulcer. L. L. HARDY. *Ann. Clin. Med.*, 1922, i, 53.

The choice between medical and surgical treatment of ulcer of the stomach and duodenum. N. A. NIELSEN. *Acta chirurg. Scand.*, 1922, lv, 57, 105.

The best technique for gastro-enterostomy as determined by functional results. A. O. WILENSKY. *Am. J. M. Sc.*, 1922, clxiv, 209.

The treatment of gastric cancer and gastric ulcer by resection. W. J. BRAIZEW. *Arch. klin. i exper. Med.*, 1922, i, 30.

Fundamental factors in the etiology and treatment of chronic intestinal diseases. H. F. FREIDELL. *California State J. M.*, 1922, ix, 232.

Some aspects of chronic intestinal stasis. E. G. SLESINGER. *Am. J. Surg.*, 1922, xxxvi, 186.

Is death in high intestinal obstruction due to liver insufficiency? A. WERELIUS. *J. Am. M. Ass.*, 1922, xii, 535.

Cystoid pneumatosis of the intestines in man. F. SCHULTE. *Arch. f. klin. Chir.*, 1922, cxx, 138. [408]

Volvulus of the entire small intestine. E. HEYMANN. *Deutsche med. Wchnschr.*, 1922, xlviii, 725.

The spontaneous reduction of intussusceptions. D. C. L. FITZWILLIAMS. *Practitioner*, 1922, cix, 93.

Duodenal anomalies. W. NIMH. *Presse méd., Par.*, 1922, xxx, 746.

Meckel's diverticulum. A. MCGLENNAN. *Surg., Gynec. & Obst.*, 1922, xxxv, 142.

"Carcinoid tumor" of Meckel's diverticulum. J. A. B. HICKS and S. KADINSKY. *Lancet*, 1922, cciii, 70.

The diagnosis of duodenal ulcer. H. J. LEINHOFF. *Nebraska State M. J.*, 1922, cii, 268.

Perforation of a duodenal ulcer following gastro-enterostomy. F. M. DOUGLASS. *Ann. Surg.*, 1922, lxxvi, 222.

Excision of ulcer of the duodenum. E. S. JUD. *J. Lancet*, 1922, n.s. xlii, 381. [409]

Non-rotation of the colon. E. J. KLOPP. *Ann. Surg.*, 1922, lxxvi, 281.

Hirschsprung's disease: dilatation of the colon in young childhood. I. A. ART. *Chicago M. Rec.*, 1922, xlv, 296.

Colitis in children. P. F. BARBOUR. *Kentucky M. J.*, 1922, ix, 436.

Multiple areas of penetrating colitis. J. F. SCOTT. *Northwest Med.*, 1922, xxi, 259.

Two cases of simple ulcer of the colon. S. LINDQUIST. *Acta chirurg. Scand.*, 1922, lv, 143.

Lymphosarcoma of the intestine. P. L. DE NOVELLES. *Ann. Surg.*, 1922, lxxvi, 229.

The surgical treatment of carcinoma of the colon, with a new method of making the operative field extraperitoneal by means of the omentum. A. A. STRAUSS. *Surg. Clin. N. Am.*, 1922, ii, 845. [410]

The pathology and clinical aspect of diseases of the proximal segment of the large intestine from the standpoint of surgical treatment. A. L. POLDENOFF. *Verhandl. d. VI. Kongr. d. Petrograd med. Ges.*, Petrograd, 1921.

The surgical treatment of pyostercoral fistula. X. DELORE and A. DEVAUX. *Lyon chirurg.*, 1922, xxix, 285. [411]

SURGERY OF THE EXTREMITIES

Conditions of the Bones, Joints, Muscles, Tendons, Etc.

- Rickets. H. THURSFIELD. *Practitioner*, 1922, cix, 34.
The etiology of rickets in infants, with a note on the X-ray diagnosis of rickets. H. CHICK, E. J. DALYELL, M. HUNT, H. M. M. MACKAY, H. H. SMITH and H. WIMMER. *Lancet*, 1922, cxcii, 7.
The effects of the ultra violet rays on the calcium and inorganic phosphate content of the blood serum of rachitic infants. F. F. TINDALL. *Canadian M. Ass. J.*, 1922, xii, 536.
A case report—adolescent rickets. H. L. HIGGINS. *Cincinnati J. M.*, 1922, iii, 240.
Osteitis fibrosa. H. SAUER. *Deutsche Ztschr. f. Chir.*, 1922, cxxx, 95.
Primary echinococcosis of bone. N. M. NEEMANN. *Wroclawski Westnik Wologodskowo Gubadrawa i Radzskowo Wojennowo Gosplada*, 1922, iii, 45. [415]
The registry of bone sarcoma and medical human nature. E. A. CRUMAN. *Boston M. & S. J.*, 1922, cxcvii, 208.
Chronic infectious arthritis (Still's disease). S. C. FOSTER. *Ohio State M. J.*, 1922, xviii, 543.
Suppurative arthritis following focal infection. E. J. MEYER. *Internat. J. Surg.*, 1922, xxxv, 269.
Dietetic treatment of chronic arthritis and its relationship to sugar tolerance. A. A. FLETCHER. *Arch. Int. Med.*, 1922, xlix, 106.
Lipoma of the tendon sheath; with report of a case and a review of the literature. A. STRAUSS. *Surg., Gynec. & Obst.*, 1922, xxxv, 161.
So-called xanthosarcoma of tendon sheaths. A. KROGUS. *Finska læk.-sællsk. handl.*, 1922, lxi, 102. [415]
Accessory muscle movements in deltoid paralysis. L. J. POLLOCK. *J. Am. M. Ass.*, 1922, xii, 326.
A contribution to the study of tumors of the clavicle; two cases of sarcoma with spontaneous fracture. S. LAMONA. *Arch. ital. di chir.*, 1922, v, 621. [416]
Multilocular cystic osteitis of the lower end of the humerus. E. SORREL. *Arch. franco-belges de chir.*, 1922, xiv, 719.
A method for maintaining pressure over the elbow in olecranon bursitis (ulnar's elbow), without immobilizing the joint. G. S. VAN ALSTINE. *J. Am. M. Ass.*, 1922, lxxix, 537.
Central sarcoma of the ulna. T. LAURENTI. *Policlin.*, Rome, 1922, xxix, sez. chir., 478.
The diseases of the sacro-iliac synchondrosis following Erzdindshan parathyroid as a sequela of a febrile relapse. E. HEINE. *Verhandl. d. russ. chir. Pirogoff-Ges.*, Petrograd, 1922.
Deep contusion of the hip. CARAVEN. *Arch. franco-belges de chir.*, 1922, xiv, 738.
Diseases of the hip joint in children. J. E. TYRRE. *Northwest Med.*, 1922, xxi, 250.
Tuberculosis of the hip. B. F. BUZBY. *N. York M. J. & Med. Rec.*, 1922, cxvi, 150.
A contribution to osteochondritis deformans coxae juvenilis (Perthes). M. HAGENBUCH. *Deutsche Ztschr. f. Chir.*, 1922, cxix, 289.
Osteomyelitis of the femur. J. A. HARTWELL. *Ann. Surg.*, 1922, lxxvi, 289.
Radiograms of a case of sarcoma of the femur. H. T. GRAY and B. S. SIMMONDS. *Proc. Roy. Soc. Med.*, Lond., 1922, xv, Clin. Sect., 31.
Observations on the normally developing knee. I. COHN. *Arch. Surg.*, 1922, v, 305.

- Chronic arthritis of the knee joint, gonococcus bacteremia, subacute gonococcus endocarditis, infarct of the spleen. R. S. HOSKIER. *Ann. Surg.*, 1922, lxxvi, 126.
Bilateral congenital absence of the patella. J. M. SPELLISY. *Ann. Surg.*, 1922, lxxvi, 280.
A disease of the patella not heretofore described. S. JOHANSSON. *Hygiea*, 1922, lxxiv, 161. [417]
Willem's treatment of septic knees. M. B. MILLER. *Ann. Surg.*, 1922, lxxvi, 116.
Congenital absence of both tibiae. R. T. CONGDON. *Northwest Med.*, 1922, xxi, 214.
Current notions on feet. H. W. MARSHALL. *Nation's Health*, 1922, iv, 462.

Fractures and Dislocations

- A general discussion of fractures based on my personal experience. W. H. MAGIE. *Minnesota Med.*, 1922, v, 451.
The treatment of compound fractures. E. B. MUMFORD. *J. Indiana M. Ass.*, 1922, xv, 255.
Fracture healing and pseudarthrosis. M. ZONDEK. *Deutsche med. Wchnschr.*, 1922, xlviii, 727.
Fractures of the surgical neck of the scapula. G. FERRY and E. ORTSCHERT. *Arch. franco-belges de chir.*, 1922, xiv, 726. [417]
Compound luxation of the elbow with rupture of brachial vessels. E. B. HODGE. *Ann. Surg.*, 1922, lxxvi, 279.
A new mechanical apparatus for the reduction of forearm fractures. A. INCLAN. *Arch. d. Hosp. Municipal de la Habana*, 1922, i, 169.
Early osteosynthesis in fractures of the bones of the forearm. P. SASTY. *Lyon chirurg.*, 1922, xix, 241.
Report of three cases of dislocated semilunar bone. R. R. CRANMER. *Minnesota Med.*, 1922, v, 484.
Fracture of the navicular bone with cavity formation. H. R. SCHINZ. *Zentralbl. f. Chir.*, 1922, xlix, 857.
Carpometacarpal dislocation. E. H. McLEAN. *J. Am. M. Ass.*, 1922, lxxix, 299.
A case history of fractured pelvis with unusual complications. E. H. MARCUM and R. J. McADORY. *Minnesota Med.*, 1922, v, 489.
A case of transacetabular pelvic luxation—central luxation—of the head of the femur. H. L. ROCHER. *Arch. franco-belges de chir.*, 1922, xiv, 746. [417]
The production of temporary paralyses in the treatment of difficult cases of congenital dislocation of the hip joint. G. ROBERTSON. *Surg., Gynec. & Obst.*, 1922, xxxv, 235.
The treatment of fractures of the hip by the Whitman abduction method. J. W. POWERS. *Wisconsin M. J.*, 1922, xxi, 100.
Steinmann's nail extension in the treatment of fracture of the femur. N. PAUS. *Norsk Mag. f. Laegevidensk.*, 1922, lxxviii, 397.
Walking apparatus with an aluminum armature for leg fractures. LAGOUTTE and LAMBERT. *Lyon chirurg.*, 1922, xix, 287.
Primary closure of the wound without drainage in the usual compound fracture of the leg. T. T. THOMAS. *J. Am. M. Ass.*, 1922, lxxix, 453.
Fracture of the patella. M. D. DELANEY. *Internat. J. Surg.*, 1922, xxxv, 271.
The technique of operation for fracture of the patella. C. WIELERS. *Arch. med. belges*, 1922, lxxv, 344. [418]
Backward luxation of the foot on the leg with fracture of the fibula. E. B. HODGE. *Ann. Surg.*, 1922, lxxvi, 179.
A case of fracture of the first cuneiform bone. G. PARVULESCU. *Spitalul*, 1921, xli, 217.

Surgery of the Bones, Joints, Muscles, Tendons, Etc.

The modern treatment of surgical tuberculosis of the bones and joints. A. A. WERNER. *Meditsinskaja Myssl*, 1922, 3, 126.

The after-treatment of osteomyelitis with the airtight dressing of Ilar. A. HERRMANN. *Muenchen. med. Wchnschr.*, 1922, I, 171.

Bone and joint transplantation. F. OETHEIMER. *Beitr. z. klin. Chir.*, 1922, CCXVI, 111. [418]

Local bone grafts. TAVERNIER. *Lyon chirurg.*, 1922, XIX, 117.

The general biological phenomena of the evolution of bone grafts. A. PUGHARD. *Lyon chirurg.*, 1922, XIX, 370. [419]

The question of bilateral osteoplastic amputations. S. W. HENNING. *Navy Clin. Arch.*, 1922, L, 370.

The surgical treatment of pseudarthroses. B. DALLMEYER. *Grossenklin.*, 1922, VII, 26. [419]

The treatment of pumylia in children. R. JAMES. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Sect. Dis. Child., 11.

Interosseous thoracic amputation. W. FISCHER. *Deutsche med. Wchnschr.*, 1922, XLVIII, 864. [419]

The formation of a thumb from the first metacarpus. H. H. M. LYLE. *Ann. Surg.*, 1922, LXXVI, 111.

The treatment of hand contracture. H. H. M. LYLE. *Ann. Surg.*, 1922, LXXVI, 110.

Disarticulation of the hip joint for periosteal sarcoma. J. K. YERGEN. *Ann. Surg.*, 1922, LXXVI, 113.

An artificial leg for thigh amputations and exarticulation of the knee. J. VAN ASSEN. *Nederl. Tijdschr. v. Geneesk.*, 1922, LXVI, 2308.

Plastic operation on the leg. E. H. POOL. *Ann. Surg.*, 1922, LXXVI, 122.

Arthrodesis of the knee joint—a new method of operation. J. A. GOLJASTYKEL. *Sitzungsber. d. Ver. theoret. u. prakt. Med., Astrachan*, 1922, V, 75.

A case of arthrodesis for ankylosis of the knee. C. LANGEVANT. *Prose med. Par.*, 1922, XXX, 677. [420]

Deformities following resection of the knee joint in the child. A. NUSSBAUM. *Beitr. z. klin. Chir.*, 1922, CCXVI, 662. [420]

Bone transplantation for cyst of the tibia. J. K. YOUNG. *Ann. Surg.*, 1922, LXXVI, 115.

A new method for simultaneous arthrodesis of the Fessel, Chopart, and Lisfranc joints. I. A. GOLJASTYKEL. *Sitzungsber. d. Gesellsch. f. theor. u. prakt. Med., Astrachan*, 1922.

SURGERY OF THE SPINAL COLUMN AND CORD

Meningeal spasmotic torticollis and lesions of the vertebrae. H. BOEGER and L. PUERTAL. *Prose med. Par.*, 1922, XXX, 184. [421]

Kyphosis osteochondropathica. O. HAHN. *Klin. Wchnschr.*, 1922, I, 1067.

A new apparatus for the treatment of kyphosis and for the prevention of its development. O. MÄHLER. *Gynginal.*, 1922, 202.

The treatment of caries of the spine. E. H. BRADFORD. *Internat. J. Surg.*, 1922, CCIV, 201. [422]

Disarticulation of the seventh cervical vertebra. FORTLONCE-BUYAT. *Rev. d'Orthop.*, 1922, II, 35. [422]

On the after-treatment of fractures of cervical vertebrae by mechanical therapeutics. E. F. CYRIAX. *Practitioner*, 1922, CII, 171.

Unrecognized fracture of the spine. M. G. STURGIS. *Boston M. & S. J.*, 1922, CLXXVII, 288. [422]

Isolated fractures of the transverse processes of the lumbar vertebrae. M. OUDARD and G. JEAN. *Lyon chirurg.*, 1922, XIX, 254.

Minor displacements of the coccyx. E. F. CYRIAX. *Glasgow M. J.*, 1922, N.S. XVI, 118.

Multiple osteochondromata of the pelvis and vertebral column. TAVERNIER. *Lyon chirurg.*, 1922, XIX, 330.

End-results of a spinal cord bullet injury. BONNET. *Lyon chirurg.*, 1922, XIX, 316.

Spinal cord tumors (arachnoid fibroblastomata). H. C. NAFFZIGER. *Surg. Clin. N. Am.*, 1922, II, 346. [423]

Endothelioma of the spinal cord. A. D. BEVAN and J. C. GILL. *Surg. Clin. N. Am.*, 1922, II, 695. [423]

SURGERY OF THE NERVOUS SYSTEM

Vegetation and sympathetonia. W. A. STARKER. *Wissenschaftl. Wchnschr. Wladimirskows. Gubelrwa 1 Elisabeth-Wladimirsk. Hospital's*, 1922, 61.

Transductive lesions in the central nervous system. D. ORR and A. C. STEINBERG. *Lancet*, 1922, CLIII, 207.

Postarterial sympathetomy in the treatment of vasoconstrictive neuritis. F. BEUENING and F. FORTNER. *Zentralbl. f. Chir.*, 1922, XLIX, 913. [424]

Repair of the peripheral nerves. B. F. DAVIS. *Minnesota Med.*, 1922, V, 474. [424]

Resuture of peripheral nerves. J. S. B. STOPFORD. *Brit. J. Surg.*, 1922, X, 216.

A case of isolation of the facial nerve from the neonatally degenerated parotid gland following typhus, with restoration of its function. M. S. LEBITTIN. *Verhandl. d. russ. chir. Pirogoff-Ges.*, Petrograd, 1922.

MISCELLANEOUS

Clinical Entities—General Physiological Conditions

Traumatic aphasia. T. M. GREEN. *Surg., Gynec. & Obst.*, 1922, LXX, 189. [425]

A case of communicating albinism due to the introduction of silver nitrate into the eye. SCHMIDTKE. *Deutsche Ztschr. f. Chir.*, 1922, CCXVI, 114. [425]

Cell growth. W. M. SENEAL. *Med. J. Australia*, 1922, I, 241.

Efficiency in the diagnosis of neoplasms. W. C. MACCARTY. *Surg., Gynec. & Obst.*, 1922, CCIV, 202.

The present status of the cancer problem. BULKLEY. *Am. J. Clin. Med.*, 1922, XXIX, 161.

Female virility and its relationship to carcinoma. J. B. WEIGHART. *Med. Times*, 1922, I, 202.

Blood

A new method for the vital staining of blood. D. FELICI. *Reforma med.*, 1922, XXXVIII, 893.

Blood pressure and pulse rate reactions—second paper. T. ARDIS. *Arch. Int. Med.*, 1922, XXX, 240.

Blood pressure technique clarified. C. H. Clark. *Minnesota Med.*, 1922, v, 120.

A simplified apparatus for the transfusion of blood by the citrate method. W. H. BYFORD. *Surg., Gynec. & Obst.*, 1922, LXXV, 229. [426]

Report of experiences with indirect blood transfusion. O. BURCHOREVINK. *Norsk Mag. f. Laegevidensk.*, 1922, LXXXII, 142.

Blood transfusion in cholera. G. PALLIN. *Acta chirurg. Scand.*, 1922, IV, 149.

The rational use of physiological salt solution intravenously. E. H. BURNEY, C. H. HARRIS, and W. S. HORN. *Texas State J. M.*, 1922, XVIII, 192.

The determination of lactic acid in blood. J. J. R. MACLEOD and M. E. ARMOUR. *J. Lab. & Clin. Med.*, 1922, VII, 213.

A case of multiple hemorrhages. S. R. PRALL. *Indian M. Gaz.*, 1922, IVII, 299.

Factors in leucocytosis. D. K. BACON, F. O. NOVY, and H. H. EYLER. *Arch. Int. Med.*, 1922, XXX, 229.

An efficient and practical method for the counting of red blood cells. T. R. WATGH. *Arch. Int. Med.*, 1922, XXX, 215.

Blood and Lymph Vessels

Aortic insufficiency. J. F. WOODS. *J. South Carolina M. Ass.*, 1922, XLII, 221.

Traumatic arteriovenous aneurism of the radial vessels. L. DEBANTE. *Riforma med.*, 1922, XXXVIII, 873. [426]

Operative arteriolysis and its rationale. LISSIZYN. *Westnik Chirurгии i pograničnykh oblastej*, 1922, I, 37. [426]

Clinical and experimental thrombo-angiitis obliterans. K. KOVANO. *Acta scholae med. univ. imp.*, Kioto, 1922, IV, 501. [426]

Embolie gangrene of the extremities, particularly the lower extremities. P. BILL. *Norsk Mag. f. Laegevidensk.*, 1922, LXXXII, 137. [427]

Varicose veins and ulcer: methods of diagnosis and treatment. J. HUMANS. *Boston M. & S. J.*, 1922, CLXXVII, 253. [427]

The thoracic duct. M. S. LISSIZYN. *Novy Chir. Arch.*, 1922, I, 377.

Surgical Diagnosis, Pathology, and Therapeutics

The clinical value of the basal metabolism determination. R. J. PICKARD. *J. Lab. & Clin. Med.*, 1922, VII, 669.

Suggested adaptation to the gasometer method of the determination of the basal metabolic rate from carbon-dioxide elimination. C. A. MCKINLAY. *J. Lab. & Clin. Med.*, 1922, VII, 665.

The value of the refracto-viscosimetric properties of the blood serum in cancer. M. E. BIRCHER. *J. Lab. & Clin. Med.*, 1922, VII, 660.

Ulcer of the leg: its localization as a point of differential diagnosis. H. GOODMAN. *Arch. Dermat. & Syph.*, 1922, VI, 179. [428]

The use of pathological material in small hospitals. J. F. KENNEY. *Boston M. & S. J.*, 1922, CLXXVII, 195.

Roentgenology and Radium Therapy

Teamwork between the roentgenologist and the pathologist. H. E. ROBERTSON. *J. Radiol.*, 1922, III, 308.

Recent developments in X-ray apparatus. A. MUTHSELLER. *Minnesota Med.*, 1922, V, 455.

Heavy filtration of the roentgen rays. KOTTMAYER. *Fortschr. d. Med.*, 1922, XI, 495.

The effects of the roentgen rays and radio-active substances on living cells and tissues. L. LOEB. *Am. J. Roentgenol.*, 1922, N.S. IX, 497.

Radio-toxemia—its cause and suggestions for its prevention. E. G. BECK. *J. Radiol.*, 1922, III, 301.

The effect of the X-ray on the germ cells. J. W. MAVER. *J. Radiol.*, 1922, III, 320. [429]

Bone diseases: non-suppurating osteomyelitis (Garré), infectious ossifying peritonitis (Bloodgood). J. C. BLOODGOOD. *J. Radiol.*, 1922, III, 319.

An interesting X-ray study of a foreign body, honey locust seed, in the right bronchus. C. E. PURCELL. *Kentucky M. J.*, 1922, XX, 529. [429]

The X-ray as an adjunct in the diagnosis of gastrointestinal diseases. F. H. CLARK. *South. M. J.*, 1922, XV, 606.

Gastropasm: a clinical and roentgenological study. I. W. HELD and J. ROEMER. *Am. J. M. Sc.*, 1922, CLXIV, 188.

X-ray diagnosis of peptic ulcer. H. B. MAGEE. *Illinois M. J.*, 1922, XLII, 136.

Positional anomalies of the gastro-intestinal tract. M. J. HUBENY. *J. Radiol.*, 1922, III, 304. [429]

Radiography of the appendix. J. G. EDWARDS. *Med. J. Australia*, 1922, II, 238.

Pneumoradiography of the kidney bed. H. BOEMINGHAUS. *Ztschr. f. urol. Chir.*, 1922, IX, 51.

The new short wave length roentgen-ray therapy. J. T. CASE. *J. Am. M. Ass.*, 1922, LXXIX, 699.

Observation on intensive X-ray therapy. W. J. YOUNG. *Kentucky M. J.*, 1922, XX, 532.

Fibrosis of the lung following roentgen-ray treatment for tumor. L. E. HINES. *J. Am. M. Ass.*, 1922, LXXIX, 720.

Radiation in the treatment of blood diseases. L. D. STERN. *J. Michigan State M. Soc.*, 1922, XXI, 324.

The roentgen treatment of hypophyseal tumors. M. KONTSCHALOWSKY and A. EISENSTEIN. *Deutsche med. Wchnschr.*, 1922, XLVIII, 722.

Roentgen-ray treatment of chronically infected tonsils and adenoids. C. A. WATERS, P. B. MACCREADY, and C. H. HITCHCOCK. *Am. J. Roentgenol.*, 1922, N.S. IX, 469.

The dosage and technique in the X-ray treatment of goiter, tuberculous glands of the neck, tonsils, and adenoids. W. D. WITHERBEE. *Am. J. Roentgenol.*, 1922, N.S. IX, 514. [430]

The present position of radiotherapy in the treatment of malignant disease. R. A. MORRELL. *Med. Press*, 1922, N.S. CLIV, 177.

The present field for the use of the X-rays and radium in the treatment of malignant neoplasms. W. S. STONE. *Am. J. Roentgenol.*, 1922, N.S. IX, 503. [430]

Recent experiences in the treatment of mammary carcinoma by means of heavily filtered X-rays. E. A. MERRITT. *J. Radiol.*, 1922, III, 313. [432]

Radiotherapy in carcinoma of the breast. G. E. PFAHLER. *Surg., Gynec. & Obst.*, 1922, XXXV, 217.

Ante-operative radiation of carcinoma of the breast. R. H. BOGGS. *Am. J. Roentgenol.*, 1922, N.S. IX, 508. [432]

The embedding of radium in the treatment of carcinoma of the breast. R. H. BOGGS. *J. Radiol.*, 1922, III, 317.

Why radium is looked upon with disfavor by some of our profession. C. H. VOSS. *N. York M. & S. J.*, 1922, LXXV, 82.

Industrial Surgery

Industrial accidents and their prevention. A. W. HAMMER. *Nation's Health*, 1922, IV, 497.

The treatment of industrial accidents. J. R. KERR. *Brit. M. J.*, 1922, II, 377.

Injuries by electricity, their prognosis and treatment. S. B. MILLER. *International J. Surg.*, 1944, XXXV, 367. [433]
 Another fatal case of injury to the skull from electric current. E. BEITER. *Zeitsch. f. d. ges. gerichtl. Med.*, 1944, I, 364. [434]

Hospitals, Medical Education and History

Early hospital history in the United States. J. B. CUYLER. *California State J. M.*, 1944, XX, 172.
 The place of the full-time and part-time physician in the modern hospital. R. I. LEE. *Boston M. & S. J.*, 1944, XXXVII, 106.
 Some hospitalization problems—hospital standardization. M. T. MacLEOD. *Canadian M. Ass. J.*, 1944, 50, 126.
 The training of the medical student. C. ALBUTT. *Brit. M. J.*, 1944, II, 407.

The evolution of surgery as I have seen it in my own practice. A. GROVES. *Canadian M. Ass. J.*, 1944, XII, 527.

Legal Medicine

The relation of medicine to the law. C. C. FLANNERY. *Nebraska State M. J.*, 1944, VII, 276.
 Implied authority to make exploratory incisions and extend operation. *King vs. Carney (Okl.)*, 204 Pac. R., p. 778. [434]
 Negligent treatment of fracture. *Petefish vs. Morrison (Kan.)*, 204 Pac. R., p. 641. [435]
 Rules for determining percentage of loss of vision. *Turpin vs. St. Regis Paper Co. et al. (N. Y.)*, 192 N. Y. Supp. p. 85.
 Liability as partners—administration of anesthetic by nurse—evidence. *Cook vs. Coleman et al. (W. Va.)*, 174 S. E. R., p. 750. [435]

GYNECOLOGY

Uterus

Anticipation and retroposition of the uterus: incidence and symptoms. L. J. SHAW. *J. Am. M. Ass.*, 1944, LXXIX, 709. [437]
 So-called traumatic displacements of the uterus. H. E. MOORE. *J. Am. M. Ass.*, 1944, LXIV, 797. [437]
 Operative treatment of uterine prolapse. S. RECAMENS. *Arch. de med. chir. y ginecol.*, 1944, VIII, 207.
 A new operative procedure in the treatment of severe uterine prolapse. B. MALINOW. *Zentralbl. f. Gynaek.*, 1944, XLVI, 364. [438]
 Uterine hemorrhage of benign origin treated by irradiation: an analysis of 177 cases of myoma uteri and myoplastic lesions. J. G. CLARK and F. E. KEENE. *J. Am. M. Ass.*, 1944, LXIV, 525.
 Uterine bleeding treated with high voltage X-rays. C. GERSHMAN. *Cincinnati J. M.*, 1944, III, 126.
 Myomatous degeneration of myofibroma of the uterus. P. ROCKEY. *Northwest Med.*, 1944, XL, 139.
 X-ray tumor surgery in the treatment of fibroid tumors of the uterus. J. L. LACE. *Northwest Med.*, 1944, XL, 241.
 Myomectomy for myomata of the uterus. W. J. MAYO. *Northwest Med.*, 1944, XL, 251. [438]
 A review of seventy-five consecutive hysterectomies for leiomyosarcoma uteri. R. C. VAN EYEN. *Am. J. Obst. & Gynec.*, 1944, LV, 166.
 Myosarcoma (atypical chorioma) of the uterus terminated by acute peritonitis. H. E. MELLEBY. *Surg., Gynec. & Obst.*, 1944, LXXV, 217. [439]
 Surgical diathermy and radiotherapy in cancer of the uterus. G. KOLLMER. *Surg., Gynec. & Obst.*, 1944, LXXV, 220.
 Surgical plus radium treatment in cancer especially uterine cancer. G. LIEBARD. *Progr. med., Par.*, 1944, XXX, 131.

Adnexal and Peri-Uterine Conditions

Ectopic pregnancy. P. GRAFFAGNINI. *Am. J. Obst. & Gynec.*, 1944, LV, 148. [440]
 Intracavitary pregnancy, with report of a case operated upon before rupture. G. A. MURPHY. *Boston M. & S. J.*, 1944, XLVII, 364. [441]
 An operation for the removal of a living extra-uterine child at full term. E. O. CAHILL. *Lancet*, 1944, CCIII, 380. [442]
 Rupture of the ovary with massive hemorrhage as a complication of an acute appendicitis. H. S. PENN. *Boston M. & S. J.*, 1944, XLVII, 375.

Cyst of left ovary with torsion of pedicle, a gravid uterus, and rupture of tubal pregnancy on right side. G. ONANO. *Policlin.*, Rome, 1944, XLIX, sez. prat., 1195.
 Ruptured corpus luteum cyst simulating ruptured ectopic pregnancy. M. A. GOLDBERGER. *Am. J. Obst. & Gynec.*, 1944, LV, 185.
 Menstrual changes in the breasts produced by the corpus luteum. A. ROSENBERG. *Frankfurt Ztschr. f. Path.*, 1944, XXVII, 466.
 Metaplasia in ovarian dermoids and cystadenomata. W. C. MACCARTY and H. D. CAYLOR. *Ann. Surg.*, 1944, LXXVI, 258.
 Melanosarcoma of the ovary. B. VAN HOEVEN. *Surg., Gynec. & Obst.*, 1944, LXXV, 249.
 Varicocele of the broad ligament. R. JAHREISS. *Zentralbl. f. Gynaek.*, 1944, XLVI, 795.

External Genitalia

A case of total atresia of the vagina and reconstruction of the vagina by the Mori-Baldwin technique. P. J. GARFUNKEL. *Medizinskaja Mysl*, 1944, I, 142.
 Vesiovaginal fistula. M. A. TATE. *Cincinnati J. M.*, 1944, III, 216.
 The treatment of cystocele. J. C. NEEL. *J. Am. M. Ass.*, 1944, LXXIX, 704. [443]
 The technique of repair of enterocele (posterior vaginal hernia) and rectocele as an entity and when associated with prolapse of the uterus. G. G. WARD. *J. Am. M. Ass.*, 1944, LXXIX, 709. [443]
 The cause and cure of high rectocele. A. B. SPALDING. *J. Am. M. Ass.*, 1944, LXXIX, 706. [444]

Miscellaneous

Some moot points in the diagnosis of the causes and in the treatment of sterility. B. C. HIRST. *Am. J. Obst. & Gynec.*, 1944, LV, 160.
 Carbon dioxide gas inflation as a means of determining the causes of sterility in women. R. S. CROON. *J. Am. M. Ass.*, 1944, LXXIX, 711.
 A tubal patency test and unsealing by a simple air filled pipette. R. L. DICKINSON. *Am. J. Obst. & Gynec.*, 1944, LV, 119.
 Relief gastric symptoms in diseases of the female pelvis. A. F. R. ANDERTSEN. *Am. J. Obst. & Gynec.*, 1944, LV, 142.
 The control of gonorrhea in women. P. FINDLEY. *Med. Herald*, 1944, VI, 231.

- The importance of vaginal drainage in pelvic infections. J. F. DICKER. N. Orleans M. & S. J., 1922, lxxv, 60.
- The treatment of pelvic infections by injections of milk. G. GELLHORN. J. Missouri State M. Ass., 1922, xix, 341.
- Radium in the treatment of diseases of women. W. H. B. ATKINS. Med. Press, 1922, n.s. cxiv, 137, 136.

- Leucocytosis following gynecological operations; a report of fifty gynecological cases, with a record of interval postoperative leucocyte counts. R. A. SCOTT. Surg., Gynec. & Obst., 1922, xxxv, 181.
- Internal secretions in gynecology. R. F. KNOLL. Pacific Coast J. Homoeop., 1922, xxxiii, 294.

OBSTETRICS

Pregnancy and Its Complications

- The history, examination, and ante-partum care in pregnancy. D. LOWRY. J. Oklahoma State M. Ass., 1922, xv, 244.
- The care of the bladder in pregnancy, labor, and the puerperium. H. W. SHUTTER. J. Am. M. Ass., 1922, lxxix, 449.
- Pregnancy and tuberculosis. F. DUMAREST and P. BRETEL. Bull. Acad. de méd., Par., 1922, lxxxvii, 727.
- Pregnancy and tuberculosis. E. SERGENT. Bull. Acad. de méd., Par., 1922, lxxxviii, 23.
- A case of rheumatic fever complicating advanced pregnancy. E. B. HEFFERNAN. Med. Press, 1922, n.s. cxiv, 99.
- Typhoid fever and pregnancy. A. FERRI. Policlin., Roma, 1922, xxix, 1193.
- The treatment of appendicitis during pregnancy. E. E. PRIBRAM. Klin. Wchnschr., 1922, i, 1256.
- A contribution to the problem of nephritis and nephrosis in pregnancy. J. L. BAER. J. Am. M. Ass., 1922, lxxix, 622.

- Chronic sepsis in pregnancy. J. E. TALBOT. Boston M. & S. J., 1922, clxxxvii, 315. [445]
- An endeavor to evaluate chronic sepsis in pregnancy. J. E. TALBOT. Surg., Gynec. & Obst., 1922, xxxv, 187.
- Toxemia of pregnancy associated with pellagra, case report. H. E. TULEY and T. F. HALE. Kentucky M. J., 1922, xx, 341.
- Eclampsia: studies in etiology. J. S. LAWRENCE. Pennsylvania M. J., 1922, xxv, 771.
- What cases of eclampsia shall we section? W. E. PARKE. Pennsylvania M. J., 1922, xxv, 775.

Labor and Its Complications

- Morphology of the human fetus, with special reference to the obstetrical measurements of the head. L. A. CALKINS. Am. J. Obst. & Gynec., 1922, iv, 109.
- The care of the perineum during parturition. F. W. CASE. Cincinnati J. M., 1922, iii, 220.
- Emergencies and complications in obstetrics, case reports. C. W. KARRAKER. Kentucky M. J., 1922, xx, 539.
- Emergencies and complications in obstetrics, case reports. H. M. RUBEL. Kentucky M. J., 1922, xx, 537.
- Analgesia applied to the first stage of labor. F. A. S. KAUF. Cincinnati J. M., 1922, iii, 224.
- Spontaneous evolution in transverse presentation. S. J. GOODMAN. Ohio State M. J., 1922, xviii, 341.
- Bandl's ring and difficult labor. P. T. HARPER. Surg., Gynec. & Obst., 1922, xxxv, 198.

- The clinical results of subcutaneous pubiotomy. J. ARNALOT. Arch. de gynec., obst. y pediat., 1922, xxiv, 116. [445]

- The placenta; with special reference to the management of the third stage of labor. J. W. BROWN. J. Oklahoma State M. Ass., 1922, xv, 239.

- Vaginal cesarean section as a treatment of placenta previa. J. T. BLANCO. Arch. de med., cirug. y especial., 1922, viii, 219.

- A method of disposing of the spill in cesarean section. E. L. CORNELL. Am. J. Obst. & Gynec., 1922, iv, 183.

- A study of the results obtained in sixty-four cesarean sections terminated by supravaginal hysterectomy. J. W. HARRIS. Bull. Johns Hopkins Hosp., 1922, xxxiii, 318. [446]

- Cesarean section under local anesthesia in puerperal eclampsia. J. A. HENDRICK. N. Orleans M. & S. J., 1922, lxxv, 57.

- Inversion of the uterus. R. WERRALL. Med. J. Australia, 1922, ii, 158.

Puerperium and Its Complications

- Symptoms and treatment of puerperal infection. R. C. BURROW. Kentucky M. J., 1922, xx, 570.
- Puerperal infection. D. H. KASH. Kentucky M. J., 1922, xx, 559.
- Puerperal sepsis. W. A. FOWLER. J. Oklahoma State M. Ass., 1922, xv, 253.
- Fevers of the puerperium. E. THORP. Lancet, 1922, cciii, 660. [446]
- Prophylaxis of puerperal and postoperative cystitis. A. DOERFLEIN. Arch. de med., cirug. y especial., 1922, viii, 201.

New-Born

- Premature infants: the malformations and diseases of the nervous, osseous, and muscular systems requiring corrective treatment. J. H. HESS. J. Am. M. Ass., 1922, lxxix, 552.

- The care of premature infants. A. L. SALMON. J. Oklahoma State M. Ass., 1922, xv, 250.

- Intracranial hæmorrhage of the new-born. E. J. BARNETT. Northwest Med., 1922, xxi, 247.

- Intracranial hæmorrhage in the new-born; a case report. E. ROSEMOND. South. M. J., 1922, xv, 618.

- Subdural hæmorrhage in the new-born. L. H. SCHRIVER. Cincinnati J. M., 1922, iii, 227.

GENITO-URINARY SURGERY

Adrenal, Kidney, and Ureter

- The unilateral extirpation of the adrenal in man. STEINTHAL. Klin. Wchnschr., 1922, i, 1258.
- Observations on intrarenal pressure: a preliminary report. B. A. THOMAS and J. E. SWEET. J. Urol., 1922, viii, 131.

- Duplication of the renal pelvis and ureter; unsuccessful heminephrectomy. F. S. SCHOONOVER. J. Urol., 1922, viii, 155.

- A case of horseshoe kidney; pyelo-radiogram; Rovsing's operation for separation of the fused kidneys. F. KIDD. Proc. Roy. Soc. Med., Lond., 1922, xv, Sect. Urol., 52.

The surgical importance of duplications of the renal pelvis and ureters. F. HAYESMAN. *Ztschr. f. urol. Chir.*, 1922, IX, 39. [448]

Bilateral polycystic kidney. S. ROULET. *Poliv. Bn.*, 1922, 200, 201, 202, 203, 204.

Unexplained renal hemorrhage. I. S. KOTZ. *J. Urol.*, 1922, VII, 131.

An unusual case of renal cyst. P. G. SMITH. *Cincinnati J. M.*, 1922, III, 134.

The effect of hematuria on the kidneys. H. B. DAY. *Lancet*, 1922, VIII, 124.

The origin of hydronephrosis. O. RUMPEL. *Beitr. z. klin. Chir.*, 1922, CXXX, 190.

The treatment of choice of hydronephrosis due to compression by an abdominal vessel. R. H. KEMMER. *J. Urol. Med. & Surg.*, 1922, VII, 131.

Ascending infection of the kidney. K. M. WALKER. *Proc. Roy. Soc. Med., Lond.*, 1922, XV, Sect. Urol., 41.

Studies of nephritis in childhood nephrosis. H. SCHWARTZ and J. L. KOTZ. *Am. J. Dis. Child.*, 1922, XXIV, 121.

The diagnosis of renal tuberculosis. W. G. SEAFON. *Wisconsin M. J.*, 1922, XVI, 91.

Carcinoma of the kidney. H. I. KRETSCHMER. *J. Urol.*, 1922, VII, 125.

Tumor of the kidney. TANY. *Brussels med.*, 1922, II, 121.

A renal tumor diagnosed as an ovarian tumor; extirpation followed by recovery. CARRICO. *Siglo med.*, 1922, I, 121.

Hydronephrosis. G. I. GAGNEPAIN. *Naval Chir. Arch.*, 1922, I, 121.

Nephritis and ureteritis. G. KOLINSCH. *J. Urol.*, 1922, VII, 120.

Two new cases of ureteral dilatation. N. M. GAUDINO. *Semin. med.*, 1922, XXX, 119.

Intravesical management of obstructions in the ureter, with special reference to stone and stricture. H. W. E. WILLOCK. *J. Am. M. Ass.*, 1922, LXXX, 733. [448]

Uretery laceration following amniotomy. LEWISOHN. *Ann. Surg.*, 1922, LXXV, 284.

Bladder, Urethra, and Penis

The character and treatment of bladder ulcers. F. L. RYDER, JR. *J. Urol.*, 1922, VII, 167. [449]

Intraoperative rupture of the bladder. T. T. TURNER. *Ann. Surg.*, 1922, LXXV, 84. [450]

Specific urethritis complicated with multiple large abscesses. E. O. SMITH. *Cincinnati J. M.*, 1922, III, 133.

Primary tumors of the urethra. A. J. SCHILL, JR., and W. F. BRANSON. *Arch. Surg.*, 1922, LXXV, 745. [450]

Circumcision under local anesthesia. R. ROGER. *Lancet*, 1922, VIII, 126.

Abnormal hypospadias. E. VAN DER OHTEN-SACKEN. *Vierteljahr. f. klin. Chir. Pseudog. Ges.*, Petersburg, 1922. [450]

A new operation for hypospadias and defects in the penile pendula of the urethra. A. FISCHER. *Zentralbl. f. Chir.*, 1922, VII, 200. [451]

Genital Organs

Congenital bands and valves of the posterior urethra. A. GILMER. *Ztschr. f. urol. Chir.*, 1922, IX, 71.

The management of acute retention of urine with special reference to the enlarged prostate. J. E. SCHULTZ. *Nebraska State M. J.*, 1922, VII, 271.

The prostate and prostatic hypertrophy. W. A. MEYER. *Nederl. Tijdschr. v. Geneesk.*, 1922, LXVI, 1279.

Hyperplasia of the rudimentary lymph nodes of the prostate. N. TURK. *Surg., Gynec. & Obst.*, 1922, XXV, 131.

Cancer of the prostate: a comparison of results obtained by radium and surgical treatment. H. C. BOURGES, JR. *Surg., Gynec. & Obst.*, 1922, XXV, 177. [451]

Prostatectomy, pre- and post-operative treatment. R. THOMPSON. *South M. J.*, 1922, XV, 610.

Vasoligation of the Steinach method of rejuvenation. T. W. EDGAR. *Med. Times*, 1922, I, 237.

The effects of vasectomy (Steinach operation). H. BENJAMIN. *Am. Med.*, 1922, XXVIII, 433.

The theory and practice of the Steinach operation. H. BENJAMIN. *N. York M. J. & Med. Rev.*, 1922, XXX, 303.

The testicles in general diseases, with special consideration of the behavior of the interstitial cells. J. REBERG and R. JAFFE. *Frankfurt Ztschr. f. Path.*, 1922, XXVIII, 305. [452]

The so-called cystic disease of the testicle. R. GRIGNANI. *Ann. ital. di chir.*, 1922, I, 382. [454]

Malignant disease of the retained or imperfectly descended testis. F. P. CONNOR. *Indian M. Gaz.*, 1922, LVII, 205. [454]

Carcinoma of the undescended abdominal testicle—report of a case. C. H. GARVIN and S. L. CARSON. *J. Nat. M. Ass.*, 1922, XIV, 159. [454]

Experiences in testicle transplantation. H. L. HUNT. *Endocrinology*, 1922, VI, 632.

Transplantation of the testicle and homosexuality. E. KREUTER. *Zentralbl. f. Chir.*, 1922, LVII, 138. [454]

Heterogeneous testicular grafting in man with histologic proof of the taking of the graft. M. THOREK. *Northwest Med.*, 1922, XVI, 239.

Free transplantation of testicles from ape to man with histologic findings. M. THOREK. *Am. Med.*, 1922, XXVIII, 448.

Contributions to the comparative and pathologic anatomy of the colliculus seminalis. J. HELLER and O. SPRENG. *Ztschr. f. urol. Chir.*, 1922, VII, 196. [455]

Miscellaneous

The diagnosis of disease of the urinary tract. W. C. QUINBY. *Boston M. & S. J.*, 1922, CXXXVII, 239. [456]

The urethroscope as an aid in the diagnosis and treatment of gonorrhea. C. C. BROWN. *Edinburgh M. J.*, 1922, N.S. XXIX, 49.

Urinary lithiasis in children. G. J. THOMAS and C. O. TANNER. *J. Urol.*, 1922, VII, 171.

SURGERY OF THE EYE AND EAR

Eye

Further study of ocular manifestations resulting from tuberculous infection. F. H. CASE. *South M. J.*, 1922, XV, 609.

Third nerve reflexes. J. P. WILLIAMS. *Am. J. Ophth.*, 1922, VI, 120.

The relation of certain ocular and cerebral conditions to infections in the nose and throat. F. R. FAULKNER. *N. York State J. M.*, 1922, XXII, 544.

Exophthalmos in exophthalmic goiter. 400 cases. I. BRAM. *Am. J. Ophth.*, 1922, V, 569.

A protest against the non-recognition of optical defects. C. H. HUBBARD. *Hahnemann. Month.*, 1922, VII, 479.

Sympathetic ophthalmia fourteen days after enucleation. J. C. ALPERE and P. SATANOWSKY. *Semana méd.*, 1922, *XXV*, 139.

A combined intra- and extra-nasal operation for the cure of dacryocystitis. J. S. CLARK. *Illinois M. J.*, 1922, *XLII*, 194.

Hernia through Tenon's capsule with extrusion of orbital fat, a birth injury. W. S. FRANKLIN and W. D. HORNER. *Am. J. Ophth.*, 1922, *V*, 601. [457]

Lymphosarcoma of orbit probably arising in choroid. I. HARTENBERG. *Am. J. Ophth.*, 1922, *V*, 604.

A case of ring sarcoma of the ciliary body. J. L. GIBSON. *Med. J. Australia*, 1922, *II*, 215.

The uveal tract. C. ZIMMERMANN. *Ophth. Lit.*, 1922, *XVIII*, 198.

Experimental research on keratitis and herpetic meningo-encephalitis. G. MARIANI. *Polichin. Rome*, 1922, *XXIX*, sez. prat., 1193.

The cornea and sclera (collective review). A. C. SNELL. *Ophth. Lit.*, 1922, *XVIII*, 153.

The crystalline lens (collective review). L. M. FRANCIS. *Ophth. Lit.*, 1922, *XVIII*, 245.

Autogenous vaccine in the cataract operation. D. CASTELLANA. *Sigla méd.*, 1922, *lxix*, 133.

Subconjunctival cataract extraction. A. MACGILLIVRAY. *Brit. J. Ophth.*, 1922, *VI*, 351. [457]

Extraction of the lens in its capsule. T. F. S. SMITH. *Indian M. Gaz.*, 1922, *LVII*, 253. [457]

Some contra-indications to the intracapsular operation for cataract, based on 8,000 cases by an intra-capsular operator. H. T. HOLLAND. *Indian M. Gaz.*, 1922, *LVII*, 296. [457]

The anterior chamber and pupil (collective review). W. R. MURRAY. *Ophth. Lit.*, 1922, *XVIII*, 181.

The vitreous humor (collective review). H. W. AUFWASSER. *Ophth. Lit.*, 1922, *XVIII*, 273.

Papillary stasis (blocked disc). A. CANTONNET. *Med. Press*, 1922, *n.s. CXIV*, 182.

Glaucoma (collective review). J. A. McCaw. *Ophth. Lit.*, 1922, *XVIII*, 231.

Glaucoma following cataract operations. J. S. LICHTENBERG. *J. Missouri State M. Ass.*, 1922, *XL*, 345.

Holth's extra-limbal tangential punch forceps sclerectomy for chronic glaucoma. S. HAGEN. *Brit. J. Ophth.*, 1922, *VI*, 390.

The optic nerve in sinus disease. C. W. CUTLER. *Laryngoscope*, 1922, *XXXII*, 576.

Optic nerve and accessory sinuses. J. VAN DER HOEVE. *Ann. Otol., Rhinol. & Laryngol.*, 1922, *XXXI*, 297.

Eyes and endocrines. C. A. BARN. *New Orleans M. & S. J.*, 1922, *LXXV*, 121.

Ear

Two cases of otobiosis. F. A. BURTON. *Am. J. Surg.*, 1922, *CCXVI*, 171. [458]

Furuncles of the ear canal. J. A. GLASSBURG. *N. York M. J. & Med. Rec.*, 1922, *CCVI*, 130.

A case of sinus phlebitis with a normal middle ear at the time of operation. I. FRIESNER. *Laryngoscope*, 1922, *XXXII*, 617.

Lateral sinus complications of purulent otitis media. A. H. ANDREWS. *Nebraska M. J.*, 1922, *VII*, 263.

A case of chronic purulent otitis media complicated by perisinal and extradural abscesses; severe meningeal symptoms. D. S. DOUGHERTY. *Laryngoscope*, 1922, *XXXII*, 587.

A case of temporo-sphenoidal abscess complicating chronic purulent otitis with spontaneous rupture and hernia into the mastoid antrum. D. S. DOUGHERTY. *Laryngoscope*, 1922, *XXXII*, 621.

Intracranial complications of middle ear suppuration. G. W. MACKENZIE. *Hahneman. Month.*, 1922, *LVII*, 449.

A report of two cases of syphilis of the eighth nerve and inner ear. E. G. GILL. *Laryngoscope*, 1922, *XXXII*, 634.

Primary malignant tumors of the middle ear. A. JESUD-SCHWEIZ. *med. Wchnschr.*, 1922, *LI*, 510. [458]

Acute mastoiditis. C. H. SMITH. *N. York M. J. & Med. Rec.*, 1922, *CCVI*, 139.

Otalgia and mastoidalgia not indications for operation on the mastoid process: report of three cases. H. I. LILLIE. *J. Am. M. Ass.*, 1922, *LVIII*, 431.

Labyrinthine surgery. J. M. SMITH. *Med. Press*, 1922, *n.s. CXIV*, 179.

SURGERY OF THE NOSE, THROAT, AND MOUTH

Nose

The intranasal correction of hump and hooked noses. W. E. BALSHINGER. *Am. J. Surg.*, 1922, *CCXVI*, 184.

Frontal lobe abscess secondary to sinusitis. J. FRIEDMAN and S. D. GREENFIELD. *Laryngoscope*, 1922, *XXXII*, 608.

Nasal obstruction in infants during the first year of life. J. A. JONES. *Lancet*, 1922, *CCCL*, 327.

Intranasal encephaloceles. F. R. NAGER. *Schweiz. med. Wchnschr.*, 1922, *LI*, 316. [459]

The diagnosis of nasal sinus disease in children. H. B. LEMERE. *Arch. Pediat.*, 1922, *XXXIX*, 601.

Diagnosis and treatment of various types of hyperplastic ethmoiditis. J. L. MAYBAUM. *Am. J. Surg.*, 1922, *CCXVI*, 177.

Ethmoiditis and sphenoiditis in relation to eye disturbance; report of three cases. M. A. WARLOW. *Laryngoscope*, 1922, *XXXII*, 624.

Antroscopy or visualization of the maxillary antrum of highmore; technique; new instruments. W. SPIELBERG. *Dental Cosmos*, 1922, *LVIV*, 821.

New instrument for resecting internal wall of maxillary sinus. W. BISHOP. *Laryngoscope*, 1922, *XXXII*, 631.

Throat

Jobson's tonsil forceps. G. B. JOHNSON. *Pennsylvania M. J.*, 1922, *XXV*, 785.

Tonsillectomy in children with endocarditis and frequent tonsillar infections. M. H. KAIDEN. *N. York M. J. & Med. Rec.*, 1922, *CCVI*, 145.

An analysis of the end-results of tonsillectomy and adenoidectomy. S. A. BLAUNER and S. Z. ORGEL. *N. York M. J. & Med. Rec.*, 1922, *CCVI*, 142.

A cured case of false route due to intubation. S. UJJ. *Orvosi hetil.*, 1921, *LV*, 378. [459]

Congenital imperforate larynx: a rare anomaly. H. L. SIEG. *J. Am. M. Ass.*, 1922, *LVIII*, 628.

Chronic stenosis of the larynx and trachea, with a report of a case treated by laryngostomy and dilatation. E. C. SEWALL. *Ann. Otol., Rhinol. & Laryngol.*, 1922, *XXI*, 352.

Significance of the extrinsic musculature of the larynx: its relation to certain disorders of the voice. E. L. KENYON. *J. Am. M. Ass.*, 1922, *LVIII*, 428.

Papilloma of the right laryngeal ventricle with a blood cyst of the vocal cord. J. ATKINSON. *Proc. Roy. Soc. Med., Lond.*, 1922, *XV*, Sect. *Laryngol.*, 45.

Mouth

Mouth sepsis as related to systemic disease. O. W. BECKWITH. *Kansas M. J.*, 1922, 25, 292.

Squamous-cell epithelioma of the lip; its surgical indications. J. H. SHAWMATER. *Surg., Gynec. & Obst.*, 1922, 22, 125.

A plea for early cleft palate operations. H. B. CATEN. *Am. J. Surg.*, 1922, 22, 711. [459]

Malignancy of the tongue. V. COMBER and J. MURKIN. *French med., Par.*, 1922, 22, 216. [459]

Tuberculosis of the tongue. F. A. BENLEY. *Surg., Gynec. & Obst.*, 1922, 22, 244.

A case of struma of the tongue. K. ZEHNER. *Muenchen med. Wchnschr.*, 1922, 59, 247.

A case of multiple dentigerous cysts in the mandible, and some remarks on the pathology of such cysts. F. SARAWATIN. *Proc. Roy. Soc. Med., Lond.*, 1922, 25, Sect. Odont., 26.

A new method for diagnosing diseases of the mucosa lining the maxillary antrum of highmore. W. SPILLBERG. *Med. Times*, 1922, 1, 206.

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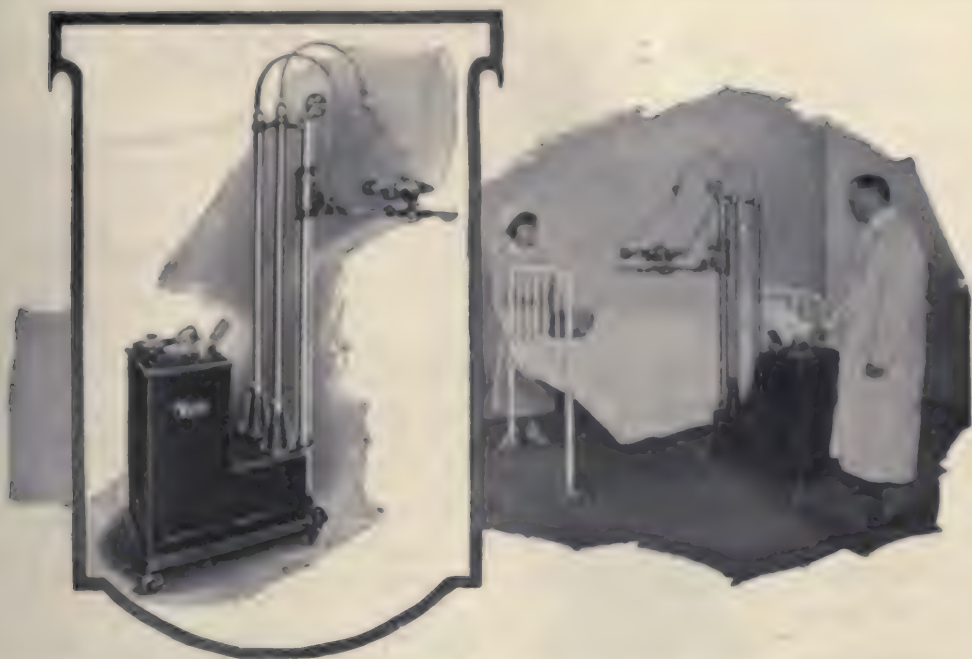
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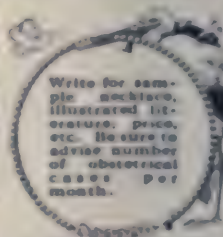
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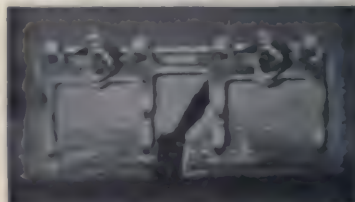
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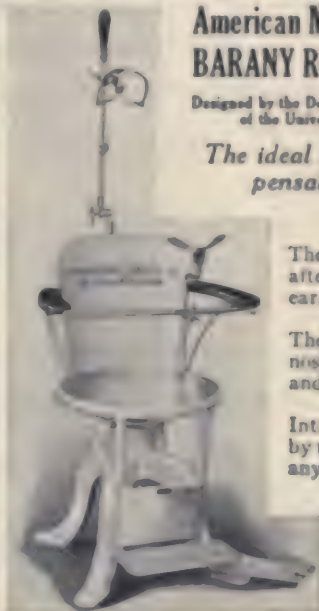
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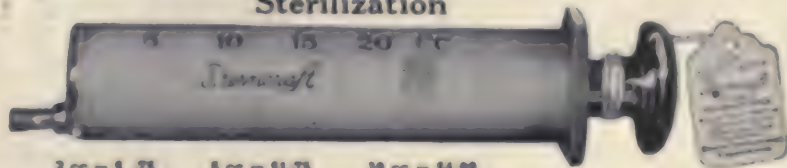
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New York Post-Graduate Medical School and Hospital

GYNECOLOGICAL SEMINAR

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9-11	Operations	Gynecological Ward Rounds 9-10	Operations	Gynecological Ward Rounds 9-10	Operations	Endocrinology 9-10
10-11	Clinical Lecture	Clinical Lecture		Clinical Lecture	Clinical Lecture	Clinical Lecture
11-1	Blood Chemistry and Metabolism (11-12:30)		Clinical Lecture and Radium Therapy every other week (10-12)		Gynecological Pathology and Bacteriology 11-12 Roentgen Therapy 12-12:45	Gynecological Pathology and Bacteriology
2-3	Clinical Gynecology	Cystoscopy, Clinical Gynecology, Operations	Clinical Gynecology, Operations	Cystoscopy, Clinical Gynecology	Clinical Gynecology, Operations	Cystoscopy, Clinical Gynecology
3-4		Clinical Gynecology		Clinical Gynecology		Clinical Gynecology
3:30-4:30	Diseases of the Rectum		Dermatology, Gyn. Neurology	Orthopedic Surgery relating to Gyn. every other week		

Fee \$150—One Month

SPECIAL COURSES IN GYNECOLOGY

***Cystoscopy and Endoscopy (Female).**—10 lessons, Tuesday, Thursday and Saturday, 2 to 4 P. M. Technique of Cystoscopy and Endoscopy and Ureteral Catheterization. The use of the different forms of water cystoscopes and the use of the Kelly method demonstrated. Students personally make examinations and do ureteral catheterization as soon as competent. Various diseases of the urethra, bladder, ureter and kidney are demonstrated and treated. The course includes fulguration of bladder growths, irrigation of the renal pelvis and the making of pyelograms.

The practical application of the indigo-carmin and phenolsulphonephthalein tests of renal function is taught. Fee, \$75.

***Gynecology.—Diagnosis and office treatment.**—10 lessons, Tuesday, Thursday and Saturday, 3 to 4 P. M. Fee, \$50.

***Gynecology.—Diagnosis and office treatment.**—10 lessons, Tuesday, Thursday and Saturday, 2 to 3 P. M. Fee, \$50.

***Gynecology.—Diagnosis and office treatment.**—10 lessons, Monday, Wednesday and Friday, 2 to 3 P. M. Fee, \$50.

***Gynecological Operations (Cadaver).**—10 lessons, Tuesday and Thursday, 10 to 12 A. M., Friday, 4 to 6 P. M. Fee, \$100.

General Discussion:

General Gynecological Technic.
Surgical "knots."
Ligature Material.
Drainage Material.

Operations:

Breast, cervix, vagina, perineum, round ligaments and horns, abdominal wall, ovary and appendix, uterus, colon and sigmoid, bladder and rectum.

*The above special courses are included in the Seminar

For further particulars address

Dean of the New York Post-Graduate Medical School and Hospital

303 East Twentieth Street

NEW YORK CITY

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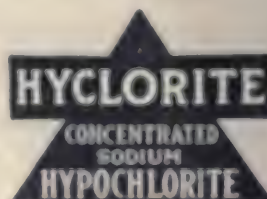
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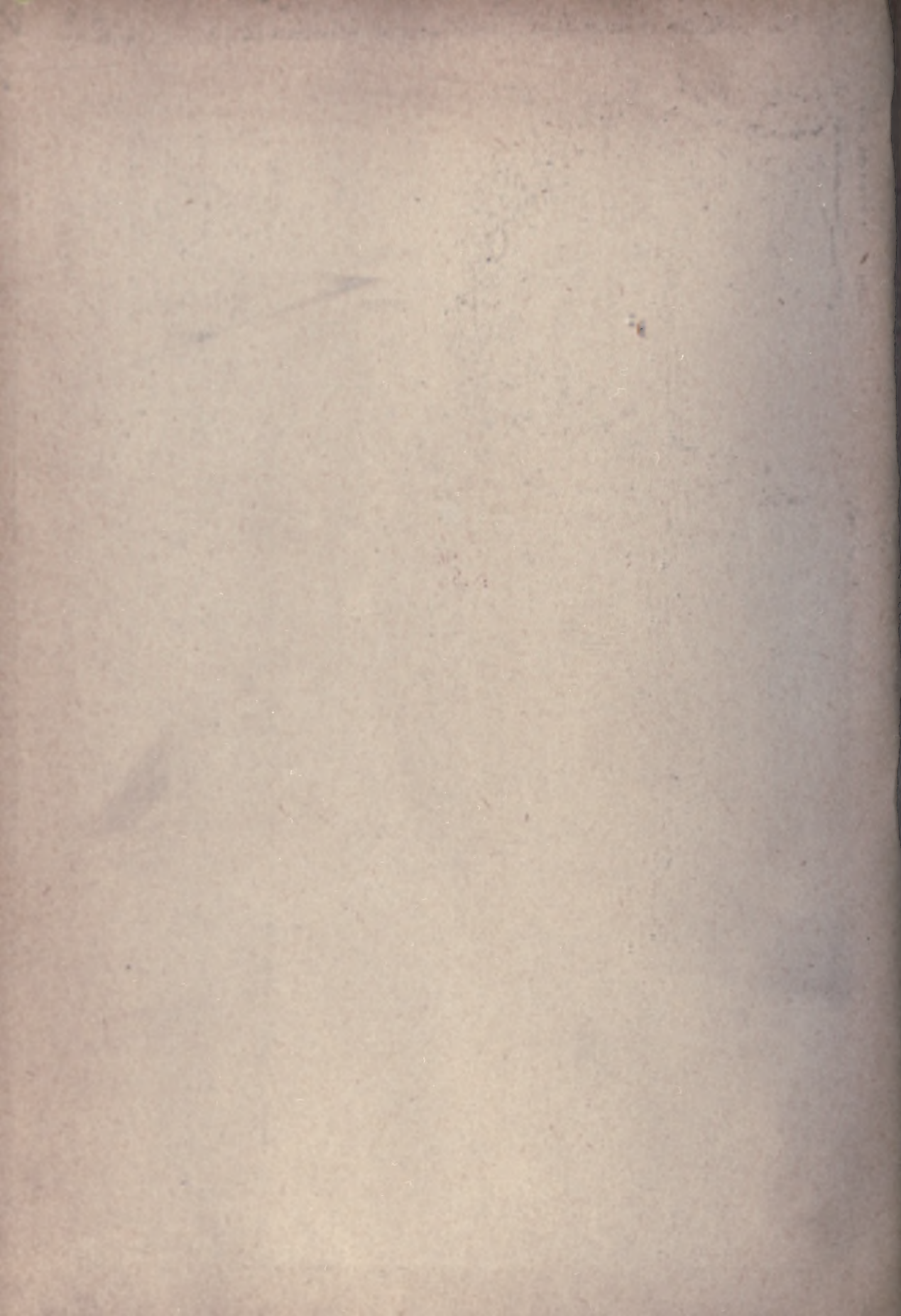
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